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TRANSACTIONS
OF THE
Dental Society ⁴⁰⁸
OF THE
STATE OF NEW YORK.

FOURTEENTH ANNUAL MEETING.

MAY 10 AND 11, 1882.



COMMITTEE OF PUBLICATION.

J. EDW. LINE,

F. FRENCH,

C. BARNES.

ROCHESTER, N. Y.
CHARLES MANN, BOOK AND JOB PRINTER, 75 MORGAN STREET.
1884.

OFFICERS :

- O. E. HILL.....*President* BROOKLYN.
L. S. STRAW.....*Vice-President*..... NEWBURGH.
S. A. FREEMAN *Secretary* BUFFALO.
A. H. BROCKWAY... *Treasurer*..... BROOKLYN.
W. H. ATKINSON.... *Correspondent* NEW YORK.
-

CENSORS :

- I.—N. W. KINGSLEY, *Chairman*.....NEW YORK.
II.—WM. JARVIE, JR.....BROOKLYN.
III.—S. D. FRENCH.....TROY.
IV.—W. H. COLGROVE.....JOHNSTOWN.
V.—S. B. PALMER.....SYRACUSE.
VI.—A. M. HOLMES.....MORRISVILLE.
VII.—F. FRENCH.....ROCHESTER.
VIII.—A. P. SOUTHWICK.....BUFFALO.
-

COMMITTEES :

- Arrangements*—W. F. Winne, E. C. Baxter, Albany ; H. A. Hall, Troy.
Publication—S. A. Freeman, L. F. Harvey, Buffalo ; C. Barnes, Syracuse.
Ethics—F. Abbott, A. L. Northrop, W. H. Allen, New York.
Business—H. G. Mirick, Brooklyn ; G. W. Weld, New York ; E. H. Dickey,
Brooklyn.
By-Laws—C. A. Marvin, Brooklyn ; C. W. Stainton, Buffalo ; L. E. Ireland,
Oneonta.
Prize-Essays—W. A. Bronson, S. G. Perry, C. E. Francis, New York.
Dental Law—W. C. Barrett, A. P. Southwick, Buffalo ; F. French, Rochester.
Dental Practice—L. F. Harvey, Buffalo ; F. French, Rochester ; C. W. Stain-
ton, Buffalo.
Transactions—Wm. Jarvie, jr., Brooklyn ; W. A. Bronson, New York ; C. A.
Marvin, Brooklyn.



TRANSACTIONS
OF THE
DENTAL SOCIETY
OF THE
STATE OF NEW YORK.

FOURTEENTH ANNUAL MEETING.

FIRST DAY—MORNING SESSION.

GEOLOGICAL HALL,)
ALBANY, May 10, 1882.)

THE Dental Society of the State of New York met as above and was called to order by the President, O. E. Hill, of Brooklyn.

The President stated that he had received a letter, in the course of which S. A. Freeman, of Buffalo, tendered his resignation as Secretary of the Society. The President stated further that the stenographer, Mr. C. K. Urquhart, would act as Secretary for the time being.

The roll of members was called, and responded to by the following: W. H. Allen, J. G. Ambler, W. H. Atkinson, W. Carr, C. E. Francis, N. W. Kingsley, S. G. Perry, F. Abbott, New York; A. H. Brockway, C. D. Cook, O. E. Hill, Wm. Jarvie, jr., H. G. Mirick, C. W. Harreys, Brooklyn; L. S. Straw, Newburgh; E. C. Baxter, W. F. Winne, Albany; S. D. French, H. A. Hall, Troy; C. K. Van Vleck, Hudson; W. H. Colgrove, Johnstown; G. E. Lamb, Port Henry; C. Barnes, F. D. Nellis, Syracuse; A. M.

Holmes, Morrisville; G. W. Hoysradt, Ithaca; C. E. Ingalls, Cortland; F. French, Rochester; G. W. Tripp, Auburn; A. P. Southwick, Buffalo.*

On motion of A. H. Brockway, H. A. Hall, of Troy, was chosen Secretary *pro tem*.

The minutes of the thirteenth annual meeting ('81) were read and approved.

A recess of five minutes was taken to enable members to adjust their accounts with the Treasurer.

This done, the President appointed J. H. Race and C. W. Harreys to vacancies on the Committee of Business, and C. D. Cook, C. Barnes and E. P. Brown to similar positions on the Committee of By-Laws.

The Committee of Arrangements presented, through its Chairman, the following report:

The Committee of Arrangements would respectfully report that it procured Geological Hall for the meeting of the Board of Censors on the 9th instant, and for the meeting of the Society on the 10th and 11th, and effected an arrangement with the proprietors of the Delevan House for the entertainment of members at reduced rates.

The Committee would report further that it has examined the credentials of the following named delegates, found them correct, and hereby recommends said delegates to membership:

First District—M. H. Rhein, New York, four years; F. M. Odell, New York (to fill unexpired term of G. W. Weld), two years.

Second District—E. Parmly Brown, Flushing, and John J. Pitts, Brooklyn, (the latter from April 6, '81), four years respectively.

Third District—A. M. Wright, Troy, four years; Hyman Rosa, Kingston, four years.

Fifth District—I. C. Curtis, Fulton, four years.

Sixth District—W. C. Stewart, Elmira, one year (to fill vacancy); N. B. Gregory, Unadilla, four years.

Seventh District—H. C. Knickerbocker, Seneca Falls; M. H. Smith, Penn Yan; J. Edw. Line, Rochester; four years respectively.

New Jersey State Dental Society—E. F. Hanks, Jersey City, four years.

[Signed] W. F. WINNE,
E. C. BAXTER,
H. C. HALL,

Albany, May 10th, 1882.

Committee.

The report was adopted.

The President, O. E. Hill, then delivered the Annual Ad-

*Many other members were present during the sessions of the Society, but failed to report themselves at the Secretary's desk.

dress, which, on motion of A. H. Brockway, was ordered printed in the Transactions.

The Treasurer, A. H. Brockway, presented his annual report, which was received and referred to the Committee of By-Laws. Following is the report :

I respectfully beg leave to report that the funds of the Society in my hands at the time of my last report, May 12th, '81, amounted to....	\$863 44
Since then I have received from permanent members and district societies.....	114 00
	<hr/>
Making a total of.....	\$977 44
I have disbursed as per vouchers.....	305 67
	<hr/>
Leaving in hand a balance of.....	\$671 77

ALBERT H. BROCKWAY,

New York, May 10th, 1882.

Treasurer.

A letter was received from W. H. Hoffman inviting members to the annual meeting of the Southern Dental Association.

The invitation was, on motion of J. G. Ambler, accepted, and the Chair instructed to appoint a delegate. The President appointed as such delegate, E. Parmly Brown.

The Correspondent, W. H. Atkinson, presented the following report :

As Correspondent to this body I have little that is encouraging to report, as I have been unable to secure anything like a regulated or consecutive series of correspondence of the various bodies who elect such officers. I have much interesting matter in a general way, as one of the members of the general body, that might be wrung in as a report of your Correspondent ; but I regard this as rather doubtful as to expediency, as we are warned that our session is so short as to be confined to two days, when we have so much other matter to engage our attention. I will venture, however, a suggestion.

If a series of questions were presented to the corresponding secretary of each State and local society of dentists, there might come out of the answer given by the various persons addressed, a mass of information for correlation into a syllabus of instruction, as to opinions and proved method of use of the various remedies commonly resorted to by practitioners of different localities, which might become a guide to teachers and learners. As previously hinted, I have not been able to engage other than personal interest in the way of correspondence with society men.

It is my deliberate conviction that if some society would appoint a live committee to prepare a method of procedure and have it embodied in a circular, that it would set the ball rolling in a new and vigorous manner, and we should realize an unheard of progress by thus interchanging our views.

W. H. ATKINSON,

Correspondent.

The report was received and ordered on file.

The Board of Censors presented the following report :

The Board of Censors report, that a meeting for the examination of candidates was held in Geological Hall, Albany, on Tuesday, May 9th, 1882, commencing at 10 o'clock A. M., and continuing during the day.

Censors present—Kingsley, Holmes, Palmer, Jarvie, Southwick, French (S. D.), Colgrove, and French (F.).

Six candidates presented themselves, and, after examination, the Board recommends four of them to the Society for its degree, viz.:

Watson Dodge Woodward, 15 West Twentieth street, New York.

Edmund Freeman Hanks, 254 Grove street, Jersey City, N. J.

William Wallace Walker, 67 West Ninth street, New York.

Julien W. Russell, 45 Green avenue, Brooklyn.

The annual meeting was held on Wednesday at 9 A. M., at the Delevan House, and the annual report made out and adopted.

Two Censors are to be elected this year in place of A. M. Holmes and A. P. Southwick, whose terms expire with this meeting.

All of which is respectfully submitted.

FRANK FRENCH,

Secretary of Board of Censors.

The report was received and ordered on file.

A letter from C. A. Marvin, for and in behalf of the Committee of By-Laws, was read by C. D. Cook. Following is an extract: "No official notice has been received * * * consequently no meeting of the Committee has been or could be held." The reader requested for the Committee further time, which was granted.

The Committee of Business presented the following report :

Your Committee of Business would respectfully report that it has engaged Mr. C. K. Urquhart, as stenographer for this meeting, at an expense of \$55.00; that the morning session will be devoted to the transaction of business; and that a supplementary report will be presented at the close of each session.

[Signed] H. G. MIRICK,
J. H. RACE,
C. W. HARREYS,
Committee.

On motion of Wm. Jarvie, jr., the report was adopted and the action of the Committee in regard to the stenographer confirmed.

The Committee of Prize Essays presented the following report :

The Committee of Prize Essays report that no essay has been received in competition for either prize offered.

[Signed] W. A. BRONSON,
S. G. PERRY,
C. E. FRANCIS,
Committee.

By request of the President, the report of the Committee of Dental Law was deferred until the arrival of the Chairman, W. C. Barrett.

The Committee of Transactions submitted the following report:

The Committee appointed last year to make arrangements with some dental journal, that the papers read before the Society and the discussion upon them may be published as soon as possible subsequent to adjournment, would respectfully report that it has entered into an agreement with the S. S. White Dental Manufacturing Company, as follows: They are to pay the expense of a stenographer, not to exceed \$60, for a report of the papers and discussions of this Society, on condition that they have such report exclusively, and with liberty to publish as much or as little as they may elect to use, in the *Dental Cosmos*.

Albany, May 10, 1882.

[Signed] WM. JARVIE, JR.,
W. A. BRONSON,
Committee.

On motion of F. French, the report was received and ordered on file, and the agreement with the S. S. White Dental Manufacturing Company ratified.*

Following are reports from the First and Eighth District Dental Societies, both of which were ordered on file, and the New York College of Dentistry:†

FIRST DISTRICT.

The last annual meeting of this Society was held on Tuesday, April 4th, 1882, at the S. S. White Dental Manufacturing Company's rooms. At that meeting the following officers were elected for the ensuing year:

President, A. L. Northrop, 44 West Forty-sixth street; Vice-President, Wm. T. La Roche, 67 West Fifty-fourth street; Secretary, Jas. E. Dexter, 8 East Thirty-fourth street; Treasurer, Chas. Miller, 331 Madison avenue; Censors, A. L. Northrop, 44 West Forty-sixth street; William A. Bronson, 8 East Thirty-fourth street; E. A. Bogue, 29 West Twentieth street; Frank Abbott, 22 West Fortieth street; C. A. Woodward, 50 West Thirty-fourth street.

*The terms of the above agreement could not be carried into effect because—First, of the failure on the part of the Committee of Publication to straighten out, *within a reasonable time*, the stenographer's unsatisfactory report; and second, the publication elsewhere by its author of one of the papers read at this meeting.

†The stenographer's minutes mention a report from the Third District Dental Society, but nothing of the kind can be found among the Society's papers.

Delegates to the State Society: M. L. Rhein, 7 West Thirty-eighth street, vice C. F. W. Bödecker, term expired; J. C. Sproull, 531 Madison avenue, vice F. M. Odell, term expired; F. M. Odell, 7 West Thirty-eighth street, to fill unexpired term of G. W. Weld, resigned.

The Society now numbers 73 active members, eight having been added during the past year, during which time one member, E. G. Roy, has been removed by death.

Nine monthly meetings have been held during the year and an equal number of public clinics have been given.

The attendance at both meetings and clinics has shown the usual average number.

The general condition of the Society is excellent, although during the year there seems to have been some slight falling off of professional interest in it. This, however, is believed to be temporary, and will be corrected as the Society progresses.

JAS. E. DEXTER,
Secretary.

EIGHTH DISTRICT.

I have the pleasure to transmit to you the fourteenth annual report of the Eighth District Dental Society of the State of New York, which is as follows:

The annual meeting of this Society was held in the city of Buffalo, on the last Thursday in April, instead of Tuesday, as formerly, the Society having changed the day by amendment to its by-laws at the semi-annual meeting of 1881. The semi-annual meeting is held on the last Tuesday of October in each year, alternately in Rochester and Buffalo. There were present at the last annual meeting of the Society 22 members and 10 visitors.

Following is a correct list of officers for the ensuing year, and their residences:

President, S. A. Freeman, Buffalo; Vice-President, J. B. Gates, Niagara Falls; Recording Secretary, C. S. Butler, Buffalo; Corresponding Secretary, G. B. Snow, Buffalo; Treasurer, C. W. Stainton, Buffalo; Librarian, M. B. Straight, Buffalo; Censor for four years, L. W. Bristol, of Lockport, to succeed himself.

Delegates to the Dental Society of the State of New York, C. S. Butler, Buffalo, to succeed T. A. C. Everett; and C. A. Allen, Buffalo, to succeed W. A. Barrows.

The Society has an active membership of 41. H. H. Benjamin, of Batavia, was expelled for non-payment of dues, and G. E. Hayes, the oldest member in point of practice in the Society, died April 27th, 1882. There were two meetings held during the year, the annual and the semi-annual, both in the city of Buffalo.

The Society has received one active member since my last annual report, C. A. Allen, Buffalo, a graduate of the University of Pennsylvania. The list of practicing dentists in this district has changed somewhat during the year, some moving away, others coming into the district, but as far as I am able to learn the number remains about the same, *i. e.*, 245. The Society is in a prosperous condition, both financially and otherwise, with, I trust, a growing interest from year to year, in all that relates to the progress of dental science.

Respectfully submitted.

C. S. BUTLER,
Secretary.

NEW YORK COLLEGE OF DENTISTRY.

Frank Abbott, Dean, made the following verbal report :

I am a little ashamed in reference to this report. Formerly we have been notified that a report would be required of us, and the report has been sent on some time before the meeting was called. I have received no notice of any meeting, or anything else, as the President knows. I have not written any report in reference to college matters at all, and because I have not been pushed to it or requested to do so. As far as the College is concerned I can report a satisfactory state of affairs; and I can say further, that we are in what might be called a flourishing condition. Our classes this year number 124 students, a larger number than ever before; and during this summer we have had 44 students in the infirmary all the time, and at the last commencement, the 23d of February, at Chickering Hall, we graduated 30 men—I believe 30 good men—after having passed what we consider a rigorous examination. We have between 40 and 50 students in the infirmary at work this year. I believe that is all of interest to the Society about the College. It is running smoothly and nicely, and I don't know that there is anything we can add to it.

The President called attention to the deaths mentioned in the reports of the district societies, and in relation thereto appointed the following committees: On death of J. C. Austin—W. F. Winne, E. C. Baxter, S. D. French; on death of Geo. E. Hayes—A. P. Southwick, W. H. Atkinson, J. G. Ambler.

The Committee on death of Dr. Austin reported as follows :

It is with feelings of deep regret that we announce the decease of our esteemed friend and professional brother, Dr. John C. Austin, who, after a weary struggle with that insidious disease, consumption, departed this life at his home in Albany, on the 23d of October, 1881. Dr. Austin was born at Fenton, Staffordshire, England, on the 22d of September, 1817. In 1829, when twelve years of age, he came to America with his parents, who located at Jersey City. He studied dentistry in New York city with Dr. Alcott, and began the practice of his chosen profession in Jersey City, where he remained three years. In 1842 he located at Albany, where he was actively engaged in an extensive practice for a period of forty years. He was one of the original members of the Third District Dental Society, of which he was an ex-President. He was also an original member of this, the State Dental Society, and was honored by its Board of Censors with the degree of M. D. S., on the 30th of June, 1870.

WHEREAS, It has pleased an all-wise Creator to call from earth our esteemed friend and professional brother, Dr. John C. Austin; therefore

Resolved, That by his death his family are bereft of a kind, generous, and loving husband and father; the profession of an active, conscientious and worthy member, and the city of Albany of an upright, Christian gentleman, one whose genial manner and generous nature endeared him to all with whom he came in contact, and whose memory will ever be held in grateful remembrance.

Resolved, That while fully aware that words are inadequate upon the occasion of such bereavements, yet we tender his family our true and heartfelt sympathy and condolence in this, their deep affliction, and rejoice with them that he died with the Christian's hope of a glorious immortality.

Resolved, That this Society place on record these expressions of its sympathy and sorrow, and that its Secretary transmit a copy of these resolutions to the family of the deceased, and to the dental journals for publication.

[Signed] WM. F. WINNE,
EDWIN C. BAXTER,
S. D. FRENCH,
Committee.

At the conclusion of the reading of the report remarks were made J. G. Ambler, after which the report was received and the resolutions adopted.

The Committee on death of Geo. E. Hayes reported the following, which was adopted and ordered spread upon the minutes :

In the death of Dr. Geo. E. Hayes, of Buffalo, this Society has met with no common loss. In the first place, it should be understood that Dr. Hayes was not a talker. He was a thinker, an active worker, and as such has made an impression upon the minds of the profession, has contributed to the general and astonishing advance and progress of dentistry greater things than it is often the privilege of one man to do. He was a practical man. He seldom indulged in theorizing. He was an original inventor, and his mind was essentially one which refused to travel in the established ruts made by other men. As proof of this it is only necessary for us to reflect a moment and we will readily call to mind the many implements and methods which had their inception in his brain. He was one of the most indefatigable of workers and experimenters. When a conception seized upon him it possessed him completely. It drove him like a demon. There was no rest for his hand or slumber for his eyelids till it had assumed a practicable form. Night was turned to day and day to night in his laboratory. He refused himself even time for eating until exhausted nature gave out entirely. Such a worker as this could not but produce something of permanent value, and we, with every member of the profession, are his heirs and the inheritors of his labors.

Dr. Hayes was a modest man and never exhibited himself or vaunted the importance of his investigations and works. Like most students he seemed to the ordinary observer reserved and self-contained. But once this outer crust of isolation was pierced, he exhibited and proved that there was a rare and genial nature which endeared him to those who knew him intimately.

Dr. Hayes was one of the oldest practitioners of dentistry living. After spending some time in the study of medicine at Canandaigua, he removed to the city of Buffalo in the year 1829. He there opened a drug store. There were

no dentists then located in Buffalo and he found himself called upon occasionally to perform operations in the mouth. His drug store burned down in the year 1831, and he then determined to devote himself exclusively to dentistry, and for about fifty subsequent years, with the exception of the time necessary for two visits to California, he continuously remained in dental practice. During this time he, by careful application and unwearied labor, accumulated a handsome competence.

He was devoted to the study of some branches of science outside of his profession, and when he died was President of the Society of Natural Sciences, in Buffalo, and left for it a munificent bequest.

In view of all these facts your Committee beg leave to offer the following :

Resolved, That in the death of Dr. Geo. E. Hayes the Dental Society of the State of New York has lost one of its most valued members, and the profession one to whom it is under deep obligations for many valuable inventions.

Resolved, That not only in our associated capacity, but as individual dentists, we mourn the loss of one to whom we were accustomed to look for sage advice and counsel.

Resolved, That a memorial page be set apart in the records of this Society, and in the next published volume of the Transactions, to permanently exhibit and testify to the profession our high estimation of the professional and personal character of our late associate.

Respectfully submitted.

[Signed] A. P. SOUTHWICK,
WM. H. ATKINSON,
J. G. AMBLER,
Committee.

W. C. BARRETT: During the whole of my professional life it has been my good fortune to be acquainted with Dr. Hayes, but it is only within the last ten years that I have *known* him. There were few men who were familiar with his inner nature, though many knew his outward form. There was about him an appearance of reserve and conventionalism which was entirely foreign to his real nature. When this outer crust was penetrated, the real warm, sympathetic character of the man became apparent.

He was emphatically an originator, and to him the profession owes some of its most valued implements and appliances. Independently of every one else he produced the mineral gum tooth. He had been using it for some time, that he might test its merits, and was about to introduce it to the profession, when he met the late Dr. Stockton, and found that he too was engaged in making nearly the same thing, though

upon the comparison of notes it was found that the tooth of Dr. Hayes slightly antedated that of Stockton.

Dr. Hayes was a man of the most indomitable energy and perseverance. When the first glimmering conception of one of his many inventions reached him, he became entirely absorbed by it. Like some potent demon-spirit it possessed him completely. It urged him on whether he would or not, and he knew no rest nor repose, no hours for sleep or refreshment, until it was roughly wrought out and the idea was safely secured. The dental world owes a debt of obligation to Dr. Hayes of which there are comparatively few aware, for his was a nature as singularly modest as it was positive. He was never idle, and the light in his laboratory, late at night, was proverbial. As the consequence of his industry and prudence he accumulated a handsome fortune, but of which he never made display.

Dr. Hayes was known as the most expert manipulator of gold plate that the profession has produced in his part of the country, and for many of the methods which we to-day are using we are indebted to him. A year or two ago a patient came into my hands in one of whose teeth was a gold filling which Dr. Hayes had inserted fifty-one years previously; a filling which had endured for a generation and a half; a piece of work wrought long before either I, or the most of those who now listen to me, was born.

Dr. Hayes' good deeds ceased not with his death, for the money which he accumulated will continue his good work long after all his earthly associates shall have gone to their reward. His bequest to the Buffalo Society of Natural Sciences, of which at his death he was President, was, it is said, the largest ever made in America for purely scientific purposes, and the Hayes fund will perpetuate his memory, we hope, long after the marble which stands above his inanimate remains shall have crumbled into dust, and the honor of the profession which he so well exemplified in life was, in his death, yet more exalted, through his benevolent bequests.

A letter from J. W. Clowes, tendering his resignation as a permanent member of the Society, was read, and the resignation accepted.

The following bills were referred to the Committee of By-Laws: S. A. Freeman, \$19.50; F. French, \$23.80; A. H. Brockway, \$6.04.

On motion of J. G. Ambler, the Chair was empowered to appoint delegates to the American Dental Association. The appointments were as follows: C. D. Cook, Brooklyn; G. W. Hoysradt, Ithaca; F. Abbott and J. G. Ambler, New York; A. H. Brockway and J. H. Race, Brooklyn; and L. S. Straw, Newburgh.

The Committee of Business reported the order of exercises for the afternoon, and at 11:40 the Society adjourned till 3:30 P. M.

FIRST DAY—AFTERNOON SESSION.

GEOLOGICAL HALL, }
ALBANY, May 10, 1882. }

At 3:40 P. M. the Society was called to order by President Hill.

The minutes of the morning session were read by Mr. Urquhart, and adopted.

The Society then proceeded to discuss "Incidents of Office Practice." The following members took part: E. P. Brown, W. H. Atkinson, J. G. Ambler, C. E. Francis, F. Abbott, O. E. Hill, M. L. Rhein.

President Hill conferred the "M. D. S." upon the following named gentlemen, on recommendation of the Board of Censors: Watson Dodge Woodward, New York; Edmund Freeman Hanks, Jersey City; William Wallace Walker, New York; Julien W. Russell, Brooklyn. The President spoke as follows:

GENTLEMEN—An examination to prove one's fitness for the position to which he aspires is always an event, and if one passes such examination with credit to himself, and is crowned with the honors consequent, it marks a time that will be remembered and referred to through life with a peculiar satisfaction and pleasure.

Your presence before this Society at this time is evidence that the State Board of Censors have found you competent. Rest not on the simple fact that they have so declared, but rather make this a starting point for a deeper research, a

wider range of thought, a keener appreciation of the ills with which you will have to contend, that you may ever be found in the front rank, ready to respond to the exigencies that will surely come across the path of one who devotes his life to the profession you have chosen.

Ever bear in mind that your patients have the right to demand of you an excellence and perfection in judgment and operation that shall stand the test of time and prove you worthy of your calling.

The profession, also, has demands upon you, and it is your duty to cheerfully respond to its call by your presence at its convocations, and by your contributions to its literature, its science and its art.

Believing you will wear the honors, now your due, manfully, it gives me pleasure, and is my duty, in the name of the Dental Society of the State of New York, to pronounce you, as the law directs, Masters of Dental Surgery.

The Committee of By-Laws presented the following report :

Your Committee has examined the Treasurer's accounts, which it finds correct, also the following accounts, viz.:

S. A. Freeman.....	\$19 50
F. French.....	23 80
A. H. Brockway.....	6 04
Janitor.....	15 00
Drayman.....	1 00
	<hr/>
	\$65 34

All of which we find correct.

The Committee would recommend that Section 4 of Article III of By-Laws be amended by adding the words, "within four months after the adjournment of the annual meeting," thus making it imperative on the Publication Committee to publish our Transactions within a reasonable time.

[Signed] CHAS. D. COOK,
CHARLES BARNES,
E. PARMLY BROWN,
Committee.

On motion of J. G. Ambler, the report was accepted and the bills ordered paid.

At this point C. E. Francis presented a paper on "Professional Duties and Practical Suggestions." It was discussed by W. H. Atkinson, C. E. Francis, N. W. Kingsley and N. B. Gregory.

A paper on "Carbolic Acid," by Frank French, was read by the author and discussed by W. H. Atkinson, E. P. Brown, and the essayist.

The Committee of Business made the following report :

The Committee of Business would report the order for the evening session as follows :

- 8:00 o'clock—Call to order and read minutes of afternoon session.
- 8:15 “ —Incidents of Office Practice.
- 8:45 “ —Lecture by Dr. Frank Abbott, of New York, on “ The Minute Anatomy of the Human Tooth,” followed by discussion of the subject until adjournment.

[Signed] H. G. MIRICK,
J. H. RACE.
Committee.

Albany, May 11, 1882.

Adjourned to 8 P. M.

FIRST DAY—EVENING SESSION.

GEOLOGICAL HALL, }
ALBANY, May 10, 1882. }

The Society was called to order at 8 o'clock by President Hill, and the minutes of the afternoon session were read and approved.

A lecture was then delivered by Frank Abbott, on “ The Minute Anatomy of the Human Tooth.” The address was discussed and questions relative thereto asked by A. H. Brockway, F. French, E. P. Brown, W. H. Atkinson, W. H. Allen, S. G. Perry, also Prof. Hailes, to whom, in the course of the discussion, had been extended the privileges of the floor.

The Committee of Business reported the order of exercises for the following (Thursday) morning, thus :

The Committee of Business would report the order of business for Thursday, May 11th, as follows :

- 9:00 o'clock—Call to order and read minutes of Wednesday evening's session.
- 9:15 “ —Incidents of Office Practice.
- 10:00 “ —Paper by Dr. E. Parnly Brown, of Flushing, on “ Gold Restoration of Abraded Dentures.” Discussion of the subject.
- 11:00 “ —Report of Committee of Dental Law, by W. C. Barrett, of Buffalo. Discussion of the report.
- 11:45 “ —Miscellaneous and unfinished business.
- 12:00 “ —Election of officers, followed by induction of officers, appointment of committees, reading of minutes and adjournment.

[Signed] H. G. MIRICK.
Committee.

Albany, May 10, 1882.

At 10 o'clock the Society, pursuant to the report of the Committee of Business, adjourned.

SECOND DAY—MORNING SESSION.

GEOLOGICAL HALL, }
ALBANY, May 11, 1882. }

The Society was called to order by the Vice-President, L. S. Straw. The minutes of the evening session were read and approved.

Prof. Hailes was present and favored those in attendance with an interesting microscopical exhibit.

"Incidents of Office Practice" were related and discussed by W. H. Atkinson and —.

W. C. Barrett moved that the matter of the publication of the diagram presented by Prof. Abbott and used by him the previous evening to illustrate his lecture on "The Minute Anatomy of the Human Tooth," be referred to a special committee of three, said committee to ascertain the probable expense of publishing, etc. The motion was carried and the Vice-President appointed as such committee Frank Abbott, C. E. Francis and S. G. Perry.

E. Parmly Brown, of Flushing, then read a paper on "Gold Restoration of Abraided Surfaces."

It was discussed by W. H. Atkinson, C. D. Cook, W. H. Allen, and the essayist.

On motion of Frank Abbott, the following resolutions were adopted unanimously and by rising vote :

Resolved, That the thanks of this Society be tendered to Prof. Wm. Hailes, jr., for the beautiful preparations he has exhibited at this session, and the warm interest he has for years manifested in our proceedings.

Resolved, That the members of this Society fully appreciate the labors which he has at different times performed for our benefit. We have been greatly the gainers thereby, and earnestly desire that he will continue his interest in us ; and further, that we will ever welcome him to our meetings.

The Committee of Dental Law presented through its Chairman, W. C. Barrett, the following report, opinion of counsel (see Records) and bill of expenses :

To the Dental Society of the State of New York :

The Committee appointed for the purpose of enforcing the Dental Law, beg leave to report as follows :

That shortly after the last annual meeting they had a conference, and in view of the facts that the summer holidays were close at hand when courts would not be in session, and many dentists would be away from their homes, and that one member of the Committee was planning a trip to Europe which would necessitate his absence during the summer, and in consideration of the necessity for unity of action upon the part of the Committee, and the repugnance of a majority towards any decided action during the absence of the Chairman, it was finally agreed to make no move until all the members could act together. Accordingly nothing was done until the autumn, when the following circular was issued, printed in all the principal dental journals of the country, and mailed to any who it was thought would be interested. Copies were sent to each of the district dental societies, and to the State censors for distribution.

“ To whom it may concern :

“ At the last meeting of the Dental Society of the State of New York, the undersigned were appointed a Committee with positive instructions to commence suits against violators of the dental law. It is desired, therefore, that all cases of persons who shall attempt the practice of dentistry without a proper registration, of students in dentistry or others illegally registered during their pupilage, or without pupilage, and who shall attempt the practice of dentistry under shelter of such registration, of persons practicing under the pretended authority of a fraudulent diploma, or of unqualified persons who attempt to practice under cover of the name of a registered dentist, be at once reported to this Committee, together with the names of persons, their patients or others, who may be summoned as witnesses.

“ The Committee will at once begin one or more suits if they be properly presented, or reported to them.

“ W. C. BARRETT, *Buffalo,*
A. P. SOUTHWICK, “
FRANK FRENCH, *Rochester,*
Committee.”

This announcement was made only after the most careful consideration, and it sufficiently indicated the course the Committee had determined to pursue. As may be seen, it was directed against four classes of persons :

First—The old practitioners who are unregistered.

Second—Students and others illegally registered.

Third—Persons registering under a fraudulent or unrecognized diploma.

Fourth—Illegal practitioners practicing under cover of the name of a registered dentist.

The Committee determined to pay no attention to complaints evidently prompted solely by jealousy, or to those coming from anonymous or irresponsible sources. Accordingly, all cases were primarily referred to the State censor for the district in which the accused resided. If he, or any other officer of the State Society endorsed the complaint as being worthy investigation, the Committee summoned the accused to show cause why suit should not be brought against him for violation of the law. He was invited to make a statement of his case, and to substantiate it with all the testimony which he chose to adduce. The Committee gave him a patient hearing, and assured him it was their desire

to ascertain the simple truth concerning his legal status, and that they had no interest whatever in making out a case against him. He was informed that when all the complaints in one district had been properly investigated, they would be submitted to the best legal counsel attainable, who would, after examining the supporting testimony, give a legal opinion as to the status of the dentist complained of. To such as he decided were in illegal practice, due notice would be given, and they would then be invited to elect whether they would go before the Board of State Censors for examination, abandon practice in this State, or stand a trial. Great care would be observed that no oppressive measures should be taken, nor action commenced without due notice, but that against those who chose the latter alternative, or who declined within a reasonable time to do either of the former, suits would be brought and pressed to a decision. This seemed to us the only fair way of procedure. That the State Society did not intend to act vindictively its very forbearing course during thirteen years amply proved, and the Committee simply desired to carry out the wishes of those who had commissioned them. This has, however, involved the Committee in an immense amount of labor, which, for obvious reasons, has fallen mainly upon its Chairman. He has been fully sustained by the others, but it was unavoidable that the correspondence and principal executive business should be in the hands of one man. The Committee could not be called together to answer every letter that was received, nor was there always opportunity for consultation in emergency cases. Each has, however, done what he could to further the ends in view. The correspondence has been large, and the time given to the examination of cases has too often been stolen from other imperative duties. Yet the Committee believe, and indeed know, that its labors have not been without results. Of the many cases investigated, most of them in the western districts, a part of the accused have established the legality of their standing, some have left the State, others have retired from practice, and a number are yet held in abeyance.

Perhaps it will be necessary to enter into a more detailed account of our proceeding, and therefore we will cite some instances of our action.

One of the first complaints made involved an officer of the Eighth District Dental Society, who was resident in a country village. Residing some fifty or seventy-five miles from him was a young dentist who was clearly in practice in contravention of the law. Complaint was made to the Committee against him, and upon investigation he claimed to be carrying on business as the agent of the older dentist, who was himself registered. There had never been any business connection between the two previously, and the older practitioner did not visit the office of the younger, nor did he claim that he had ever received any returns from the office. The Committee were about to commence proceedings, when they received evidence that the young man contemplated attending a dental college, and upon his properly matriculating the Committee decided to stop the proceedings.

In order to test the question as to whether an unqualified dentist could practice under cover of the name of one who was qualified, friendly charges were preferred before the district society, against the member who had thus, in the opinion of the Committee, assisted in this evasion of the law. The district society's committee on ethics took a most extraordinary view of their duties, tried the accused in his absence, without notifying the prosecution and without examining any witnesses, or in any way arraigning the accused, and refused to

present the case before the society. Therefore that question is still undecided.

The majority of complaints have been made against those who were, at the time of the passage of the law, students, and not independent practitioners. The great mistake in the framing of our law was made when the county clerk was allowed to register any applicant without administering an oath as to his being actually engaged in practice. The Committee summoned numbers of such registered students before them, and took their statements. It was found that a few had personally registered, while more had secured their registration by proxy, the proprietors of a number of the shops which had annually turned out large quantities of ready-made dentists, having registered not only actual, but prospective students, and even young children.

The Committee carefully sifted these cases, and took very much of testimony concerning them. When this had been accomplished there arose a necessity for legal counsel, to whom all the mass of complaints, statements and testimony could be referred; who would patiently examine the legal bearing of each case, and advise the Committee as to who were and who were not in legal practice. They, therefore, after due consideration, employed Ralph Stone, esq., of the city of Buffalo. After examining a certain class of the cases he gave his opinion that while the accused practitioners ethically were not in regular practice, yet, legally, they presented such difficulties and had so hedged themselves in with complications, that it was not advisable that prosecutions be brought against them. He selected four or five dentists whom he adjudged in illegal practice, and indicated one of them as the most flagrant, and this case the Committee determined to prosecute. Upon laying the proof before the district attorney he advised our counsel that certain evidence was essential, and this could only be procured in Canada, whence the party had removed to this State. The gathering of this testimony would cause the Committee to incur considerable expense, and at this they hesitated, and consulted the officers of the State Society, who advised them that, as the time for the annual meeting was near at hand, they should defer further proceedings until the State Society could pass upon the matter. Therefore, the Committee stopped all proceedings until they could receive your instructions. It is needless for us to detail all of the numerous cases which have come before the Committee. A number await action which are doubtless actionable, but we have desired to push only one case at a time. We are sorry that we cannot present to the Society a conviction under the law, but as there were no precedents to guide us, we have necessarily moved slowly. If we have no brilliant victory to announce, we need chronicle no defeats. A considerable number of unqualified dentists have been driven out of practice, and numbers more were deterred from commencing. The *moral* effect of the law has been forcibly exerted, and the Committee have closely watched the interests of the profession. The ground is now all clear, the preliminary work is completed, we leave to our successors a fair field, and are now prepared to turn over to them all the information, complaints and testimony now in our hands, and to aid them in any way possible.

In the course of the discharge of its duty the Committee has fallen upon some curious cases. Perhaps the most peculiar one is that of John Jefferson Kesler, of Little Valley, Cattaraugus county. Complaint was made against him, and the Committee wrote him, asking under what authority he was engaged in the practice of dentistry. Promptly came the answer, enclosing the certificate of the county clerk of Cattaraugus county, that the accused had complied with

all the provisions of the law, by filing in his office a diploma conferring the degree of "Doctor of Dental Surgery," issued by the Wisconsin Dental College, situated at Delevan, Wisconsin. His matriculation tickets were presented, *bearing the same date as his diploma.*

It may well be imagined that such a piece of assurance astonished the Committee to the last degree, and they at once returned him the following letter :

"SIR :—We are in receipt of yours and hasten to reply. Your diploma is a fraud. It comes from an unrecognized source, and it is our purpose to prosecute the possessor and employer of every such disreputable document. We are very much surprised that you should have the assurance to hang up such a perpetual witness of your disgrace, and the sublime impudence to attempt to pass it off upon us as a genuine qualification for practice. We desire to talk plainly with you, and that you may feel assured that there is no personal feeling in this matter, we first of all declare that we are acting as the rather unwilling instruments of the New York State Dental Society, to which we must make report of all that we do, and furthermore that, personally, you are an entire stranger to us.

"The law makes special provisions for the punishment of those who attempt the use of a fraudulent diploma. You must *know* the character of the Wisconsin institution. You know that you attended no lectures and pursued no curriculum of studies. Scarce a dentist in this State failed to receive one or more of those infamous and insulting proposals to *sell* him a diploma which could convey nothing but opprobrium and disrepute. Among professional men there is no act which is held in such general and utter detestation as the acceptance of one of these fraudulent papers. Yet you have the effrontery to send to the Committee of the State Dental Society having in charge the enforcement of the law, that disreputable document as an evidence of your regular practice, and to present a certificate that the scandalous thing hangs upon your office walls. Shame upon you ! The Delavan diploma mill is denounced by all respectable men, and will meet the fate of its Philadelphia prototype, whose infamous proprietor, Buchanan, is now in the penitentiary, and whose patrons and so-called 'graduates,' would gladly give large sums to be delivered of the odium connected with their disgraceful purchase.*

" 'Though the mills of God grind slowly, yet they grind exceedingly small,' and despite the delays of the law, the conductors of the so-called Wisconsin Dental College shall yet reap their reward in a Wisconsin prison. You paid twelve dollars for your *diploma*, and claim it as sufficient authority for you to enter an honorable profession. You desire to profit by this knavery, and in turn to perpetrate the imposture upon those who may be so unfortunate as to patronize you ; but you will yet discover that a better policy would have been common honesty. Our duty in the matter is plain :

" *First*—Suit will be begun against you as soon as possible.

" *Second*—The State Committee consider it their bounden duty to guard the

* Buchanan and Paine sold diplomas purporting to be issued by the Pennsylvania Hospital ; Eclectic Medical Institute, Cincinnati, Ohio ; Livingston University of America ; Eclectic Medical College of Pennsylvania ; National Eclectic Medical Association ; American University of Philadelphia ; and a number of other bogus institutions, purporting to be located either in this country or in Europe. Some of them, like this Delevan affair, were organized under a lax general law, but like it were conducted by unprincipled, ignorant men, whose sole object was to make money by selling their disgraceful diplomas.

people of Cattaraugus county from imposture, by informing them what is the character of the diploma which you are endeavoring to foist upon them as reputable. The man who will deceive them as to his legal qualifications cannot be trusted in any professional relation whatever.

“*Third*—The Committee will also feel itself obliged to notify the profession that there is, to their astonishment, one man who has disgraced himself and dentistry by buying one of these dirty things, and has even had the hardihood to offer it to regular dentists as evidence of professional standing.

“*Fourth*—We desire to assure you that this filthy document, so far from forming a legal qualification, is of itself proof of fraudulent practice, and will be cited in evidence.

“There is a bare possibility—and from the exceeding *freshness* with which you offer us this document, perhaps something more—that you do not realize the enormity of your professional misconduct, and do not know how an unearned diploma is viewed by professional men. If this be the case, and you desire to retrace your steps, you will first of all wash your hands of this shameful thing, and go before the State Board of Censors for a legal examination. Should you desire so to do you can at once notify us, when we will give you a reasonable time for its accomplishment. But the fraudulent paper must be first of all surrendered to us, for return to those who issued it. In the meantime we shall be collecting the necessary facts and evidence, aside from the diploma, upon which to carry on the suit.”

[Signed by the Committee.]

The prompt answer to this letter was, that the accused was ready to obey the law, and would soon appear before the Committee and comply with their demands, but in a few days they received information that he had left for parts unknown. There are others, of whom the Committee have knowledge, who are holding these dirty “diplomas.” As it is in clear violation of the law, the Committee will turn over the proof in their possession to their successors in office.

Some expense has been incurred. First, a lawyer was necessary. He has done much more work than will appear to those who are not familiar with our labors. So onerous did the examination of accused dentists become, that we turned this duty over to him, after he was employed. He has traveled considerably, and worked faithfully. We present his bill (§51.19) for services rendered.

The correspondence has been very large, and finally, when the inquiry had become so great as to what we were doing, a report of our work was, at the request of the editor of one of our dental journals, written out, and this was published. The owners of the journal generously sent copies to all whom we indicated, but after this was done we were still in receipt of letters of inquiry, all of which were immediately answered by the same parties and in the way just stated.

The bill for stationery, stamps, postal cards, etc. (§§.36), is presented, and this comprises the sum of the expenditures of the Committee.

[Signed] W. C. BARRETT,
A. P. SOUTHWICK,
FRANK FRENCH,
Committee.

On motion of L. S. Straw, the report, including the opinion, was ordered spread upon the minutes in full.

A rising and unanimous vote of thanks was given the Committee for the able manner in which its duties had been performed.

A motion that the Committee be continued another year was carried, the President substituting A. P. Southwick as Chairman, vice W. C. Barrett.

The publishers of the *Odontographic Journal* were given a vote of thanks for copies furnished the Committee of Dental Law.

On motion of S. D. French, the dues for one year of H. H. Young, of Troy, were remitted and his name stricken from the roll.

On motion of W. C. Barrett, each district censor was appointed a sub-committee to coöperate with the Committee of Dental Law, and otherwise aid in the enforcement of the provisions of the law. Also,

Resolved, That the district societies be requested in the appointment of committees to act towards the enforcement of the dental law, to instruct such committees not to take any action independent of the State Committee.

Adopted.

On motion the Committee of Dental Law was empowered to expend money necessary to collect evidence in the prosecution of offenders.

The Committee of By-Laws presented the following supplementary report :

That the following bills have been presented :

Committee of Arrangements.....	\$	65
Philip Hertz.....		2 75
C. K. Urganhart.....		55 00
A. M. Holmes.....		13 95
Ralph Stone.....		51 19
Committee of Law.....		8 36

\$131 90

Examined by the Committee and found correct.

[Signed] CHAS. D. COOK,
CHARLES BARNES,
E. PARMLY BROWN,
Committee.

The report was adopted and the bills ordered paid.

The Society then proceeded to elect officers for the ensuing year, J. H. Race, W. F. Winne and J. H. Holly acting as tellers. The result was as follows :

President—L. S. Straw, Newburgh.

Vice-President—Frank French, Rochester.

Treasurer—A. H. Brockway, Brooklyn.

Secretary—J. Edw. Line, Rochester.

Correspondent—W. H. Atkinson, New York.

Censors—A. M. Holmes, Morrisville, VIth District; A. P. Southwick, Buffalo, VIIIth District.

The Committee of By-Laws reported for permanent membership the names of J. H. Race, Brooklyn, C. F. W. Böedecker and Benj. Lord, New York, and Geo. E. Lamb, Port Henry. The report was adopted, and on ballot those named duly elected.

The President appointed N. W. Kingsley and J. G. Ambler to conduct the President elect to the chair.

President Hill thanked the Society for the aid tendered him in the performance of his duties as presiding officer, and particularly Prof. Abbott for his lecture of the previous evening. He then introduced L. S. Straw, the President elect, who acknowledged the honor and assumed the chair.

After a short discussion by W. C. Barrett and C. D. Cook, of Miller's researches in the field of dental decay, the Society adjourned.

J. EDW. LINE,
Secretary.

ANNUAL ADDRESS.

By President O. E. HILL, M. D. S., Brooklyn.

AGAIN, Gentlemen, we are assembled for the purpose of discussing the principles which underly the practice of our profession, and, if I may be allowed the expression, *massing* the little knowledge each one of us may have acquired in the past twelve months, placing it before our fellows, that each may gather from the whole wisdom and professional acumen. We are also to take into consideration matters of a legislative character, which are of interest to the profession and necessary to the carrying out of the original purposes of this Society. And, while most of our time should be devoted to the presentation and discussion of professional subjects, we cannot entirely ignore the fact that this Society is in part made up of representatives from our district societies, which at this particular time stand in need of advice and counsel in regard to the present position of the profession in its relation to the law and its enforcement. We must recognize the fact that a new power has been put into our hands, that a new element has been introduced into the profession, and we must carefully use that power for the best interests of all concerned. At no time in the history of the profession has there been greater need for combined, earnest, harmonious work. At no time has there been the opportunity for us to so successfully combat ignorance and empiricism, as the present. Let us improve it, and with a solid front and an energy and courage that truth and honest endeavor always impart, unite to rid the profession of the charlatan and the pretender, and hereafter so carefully guard the portals that none shall enter who have not the proper credentials of having been raised to the degree which the law has made it proper for us to confer.

It is most unfortunate that so small a proportion of those who ought, and in fact most need, to be present are not here.

It is an unpleasant duty for me to say to you, and through you to your respective district societies, that they are not as efficient, willing workers in the effort to unite all dentists and bring them within the influence of the State organization, as they ought to be.

Look at it! There are over two thousand registered as dentists in this State; less than three hundred are members of the district societies. In other words, only one in seven avail themselves of the privileges offered of not only becoming personally acquainted with their fellows, but thoroughly familiar with the latest and best methods of the first and foremost men in their profession.

Perhaps the following figures will serve to bring this more directly to your notice, and at the same time show you that even in the largest cities, where it is far less trouble to attend such meetings than in the country, the proportion of members to the number of men registered is decidedly in favor of the country: For instance, in the—

District.	Registered.	Members of District Society.	One in—
1st	580	68	8
2d	381	42	9
3d	135	30	4
4th	131	17	8
5th	198	29	7
6th	200	32	6
7th	197	37	5
8th	243	42	5
	<hr/> 2005	<hr/> 297	<hr/> 7+*

It is something beyond my comprehension why, after seeing what this Society directly and through its various organizations has done for the profession, so little interest is manifested in it—as evidenced in the attendance at its annual meetings.

Where are the sixty-four delegates from the district societies whose special business it is to be present and represent their respective districts, and aid us in everything that pertains to the building up of the profession and the

*As "Registered" includes "not only actual, but prospective students, and even young children" (see page 19), the President's "7+" is too low.—[Com. of Pub.]

advancing of its standard? We need their advice and counsel, nor can they, or their Societies, afford not to be represented here.

Last year I addressed a letter to the President of each of the district societies, calling their attention to the non-attendance of delegates. The kind responses I received led me to anticipate a much larger meeting than usual; but my anticipations were not realized.

This year I call your attention to the matter again and ask that you give it serious consideration, and if in your judgment anything can be done to remedy the evil, to do it.

Again, where are the gentlemen who have been honored by being elected to permanent membership? From them we expect much that will tend to make our gatherings interesting, instructive and truly professional in character. How many of the sixty-six are in the habit of meeting with us? I will answer by asking you—Is it not time the Society investigated its method of distributing its honors? And would it not be well to hereafter place them only where they will be likely to do most good for the Society and the profession? Too much praise cannot be bestowed upon those old and honored stand-bys who, year after year, and as regularly as the seasons, appear here to do even more than their duty. To them the profession owes much, and they are continually adding to that debt. Examine the proceedings of this Society since its organization, call up the work that has been done that does not appear in its records; then think of the few who have been actively engaged in the accomplishment of the grand result, and I think you will agree with me, that to them we are indebted almost beyond our ability to pay. Go back with me to '68, and what were we then? Without organization, without recognition, a number of individuals only. To-day we are a fully equipped profession, and recognized as such both by the law and the public. That being the fact, the question we must now meet is—How can we gather in the seventeen hundred that are outside of all society organizations and influence? How can we prove to them that as citizens, as professional men, they owe it to themselves, to their patients, and to the profession, to no longer remain disinterested and inactive.

I am aware of the fact that those who have been most active are becoming a little discouraged at the lack of appreciation and interest on the part of the many; but, gentlemen, you must overcome that feeling, and continue your efforts to further the work you have so well under way. In the meantime, gather in and enthuse those outside that they may take the burthen from your shoulders and courageously carry it on to a complete development.

Since our last meeting the law regulating the practice of dentistry has been amended, and means taken to acquaint dentists with that fact. Not wishing to anticipate the report of your Committee appointed to put the law in force, I will only add (being familiar with their action), that I feel it due to you and them, that they be commended for the close attention, and thanked for the time they have given the matter. I do this, knowing it has been far from pleasant to them—in fact, a task they shrank from; but their sense of duty to the profession lightened the burthen which their personal friendship for the Chair caused them to take upon themselves.

The Committee to whom was referred the matter of publishing the proceedings of this Society immediately after its session, have completed arrangements with the S. S. White Dental Manufacturing Company, which I think you will fully endorse. I only ask your careful consideration of the report when it is presented, and that such action be taken as will insure the immediate publication of all papers and discussions, together with such other matter as may be of general interest to the profession, in the *Dental Cosmos*.*

It is desirable that we have a full, free discussion and criticism of all matters that may come before us. A society of the nature of this, without discussion, is like a bell without a tongue, there is no ring in it. But in our discussions and criticism let us not lose sight of the fact that all are not alike endowed with the power of putting their thoughts in correct and elegant form, and let us not forget to encourage in every way the younger members to take an active interest in the discussions. And you, young men, must not demand too much nursing.

*See page 7.

And now, gentlemen, I regret the necessity that impels me to ask you to remain till the close of the session. Two days devoted to the interests of this Society; to the organizing, building up, and uniting into one common brotherhood, the various professional interests throughout the State, is time well spent. The fact that we have such an organization, and that you are an active member of it, gives you better standing as a professional man; the public have more respect for you; your patients have more confidence, more pride in you than if it were not so. It pays better than you think. I trust all will remain, and by giving us their best thoughts, and their latest methods, make this the most interesting and instructive meeting this Society has ever held.

CARBOLIC ACID.

By FRANK FRENCH, M. D. S., Rochester.

TAR, with what is obtained from it by distillation, is a complex product. We will only refer to two substances, viz.: Creosote, which is obtained from wood tar, and Carbolic Acid, which is obtained from coal tar; and though differing in composition, their action is very much alike.

Creosote is found in the products of dry distillation of wood, and of various vegetable as well as animal substances, and of Benzoin resin, used in fumigation. Tar barrels, which have been burned in time of epidemics to purify the atmosphere, give out this substance, but would give a greater quantity if the flames were suppressed, and distillation only allowed.

The world has admired this substance without knowing of its existence; has sought for it, using various names to express it; wrapping it in bundles to carry around them, burning it in pastiles for fumigation, and sometimes in public in great bonfires. The most civilized peoples of olden times, kept in the products of tar, the dead that they desired to preserve to a joyful uprising.

Thus we see that the antiseptic properties of tar were known at a very early period, but the process of extracting its subtle essences, and bringing them into general use, was reserved for the 19th century.

Creosote was discovered in 1832, by Reichenbach; it is officinally described as a peculiar substance obtained from wood tar. It is a colorless oily liquid, of a peculiar disagreeable penetrating odor, resembling that of wood smoke, and has a burning, acrid taste, which is perceived throughout the whole extent of the buccal, nasal and pharyngeal mucous membrane. It burns briskly in the air, emitting large volumes of smoke. It coagulates albumen, but exerts no action upon fibrin. It is sparingly soluble in water, but readily so in

ether, alcohol, acetic acid and the essential oils. It acts as a solvent of iodine, phosphorus, sulphur and the resins. Its action, both upon animal and vegetable organisms is so identical with that of carbolic acid, that there is no real reason for giving it the preference which some do, even if it could be obtained pure, which is nearly impossible. In fact, *pure* creosote is almost a myth. Dr. Brophy says: "Of 25 samples of creosote, purchased from as many different dealers, I find on examination that, with one exception, all contain carbolic acid; some were pure carbolic acid." This being the case, is it not preferable to use pure carbolic acid, and call it so, rather than use a mixture and call it creosote? They may be distinguished from each other by the following tests:

Carbolic acid becomes solid at ordinary temperatures, while 17° below zero does not affect creosote.

Carbolic acid is soluble in water, 1 part in 95, or 1 in 20 of boiling water, and this solution is colored a deep violet purple by the addition of a solution of ferric chloride. Creosote is soluble in water, 1 part to about 125, and is colored brown by ferric chloride. An alcoholic solution of carbolic acid is colored a light olive green by ferric chloride; an alcoholic solution of creosote, a dark sea-green. Carbolic acid forms a jelly when shaken with collodion, creosote does not.

Carbolic acid was discovered by Runge, in coal tar, in 1834, and given the name it now bears. It is procured from coal tar by distillation, at a temperature of from 300° to 400° Fah. In 1841 it was investigated by Laurent, who gave it the name of Hydrated Oxide of Phenyl; it was afterwards called Phenic Acid, and, as it is closely related chemically with the alcohols, it was called by some Phenylic Alcohol. It is, however, best known by the name given it by its discoverer.

Before its use separately, its virtues were exhibited in the crude material known as coal tar, in 1844, by M. Bayard. About 1860, Kuchenmeister used it under the name of "Spirol," both in medical and surgical practice, and as a means of arresting putrefaction and preventing the development of fungi. In 1863, Dr. Lemaire issued a treatise upon Phenic Acid, illustrating its power of preventing fermentation and putrefaction, and its application to medical and surgical

uses. In 1865, M. Déclat illustrated the power of the acid to destroy the microphytes and microzoaires, developed during fermentation and putrefaction, and of preventing the changes which constitute these processes. After this it came into general use, both in this country and Europe. Its vogue is chiefly to be ascribed to Prof. Lister, who commenced its use as a surgical dressing in 1865.

Carbolic acid, in its pure state, is solid at ordinary temperatures, and is either in acicular crystals, or crystalline masses; colorless when pure, but when impure a reddish brown, or becoming so on exposure to light and air, which is said to be caused by the presence of xylic and cresylic alcohols, which always accompany it in its impure state, and adhere to it tenaciously. On exposing the crystals to the air they attract moisture and deliquesce. It becomes liquid by the presence of water in very small quantities. With regard to its solubility in water, there is a great diversity of opinion in regard to the proportions. It is claimed to be soluble in 15 per cent. of water, and from that, all the way up to 95 per cent. I find by experiment that the crystals will absorb 10 per cent. of water by weight, and become perfectly liquid. After that proportion of water has been taken up, there is no union of the acid and water until 95 per cent. of water has been added, at which point the acid is entirely dissolved, but not before. It is, however, perfectly soluble in 20 per cent. of boiling water. It is very soluble in ether, alcohol, acetic acid, glycerine, and the fixed oils. It is inflammable, burning with a reddish flame and dense volume of smoke; it melts at from 95° to 106° , and boils at from 359° to 370° Fah. Nitric acid converts it into picric acid, and it is largely used in its manufacture. It reduces many metallic salts, especially those of silver and copper; with alkalies it forms acid salts, and combines readily with iodine, bromine, quinine, &c. As generally sold, if pure, it is an oily, colorless liquid, with a strong smell like creasote, and having like it a pungent acrid taste. With regard to the propriety of calling it an acid, it does not respond to the usual test with litmus paper, when tested at full strength, but in a solution of 5 per cent. carbolic acid and 95 per cent of water, we get a decided acid reaction, coloring blue litmus paper red, almost instantly. Why the addition of water should change a neutral solution to an acid,

I am unable to state. I discovered this acid property accidentally, about a year ago, while making some experiments. It may have been known to others, but I have seen no account of it.

As a therapeutic agent it is invaluable, as it possesses stimulant, narcotic, irritant, styptic, antiseptic and escharotic properties. It unites with albumen and gelatine, forming with them insoluble compounds. It has remarkable antiseptic powers, and consequently is a valuable topical application, in cases attended with offensive purulent or other discharges, but it is not a disinfectant, as generally considered. It prevents decomposition, but does not destroy or render inoffensive the products of decomposition. It is commonly used as a deodorizer, but it is not one; it has *no* action upon foul emanations. Its operation consists in preventing their generation, by arresting putrefactive changes in the substances which exhale them. Lemaire claims that these changes are due to septic infusoria in the atmosphere, which, "when admitted into wounds, ulcers, etc., produce a decomposition in the part and its secreted fluid, aiding the formation of pus; that this decomposition is effected by a vital action, similar to the production and multiplication of organisms in fermentations; that carbolic acid in small doses has the power of preventing and arresting any such decomposing effects from these organisms, by at once and immediately destroying the life of the organisms themselves."

Whether this view be correct or not, it is undeniable that it will prevent putrefaction, or arrest it where it has already begun, and when putrefaction ceases, the foul emanations cease also, and this is undoubted the way it works when applied to drains, sewers, etc., and decayed substances, whether animal or vegetable.

All the lower forms of vegetable organic life are destroyed by carbolic acid. It arrests fermentation, destroys mould and mildew, and prevents the germination of seeds in water containing a 100th, or 200th, part of this acid. A strong solution applied to the roots of trees and shrubs kills them, and if to the flowers, leaves and fruit, these die.

On animal organisms a very small proportion of it in water containing bacteria, amoeba and other infusoria, speedily de-

stroys them. It is equally destructive to the life of ascarides, earthworms, caterpillars, fleas, moths, ants and other insects. Fish, frogs and leeches die speedily in a solution of it, and two or three drops applied under the wing of a sparrow, produce convulsions and death. In the case of dogs, a five per cent. aqueous solution administered, causes them to fall, cough, become convulsed, and then paralyzed in both sensation and motion; the acid is exhaled in breathing and they gradually recover. One-half fluid drachm dissolved in twelve fluid drachms of glycerine, and thrown into the stomach of a dog, caused all the above symptoms, and in addition a bloody froth was ejected, and death ensued suddenly in ten minutes after administration. After the death of animals from poisonous doses, extreme congestion is found of the brain and its membranes, alimentary canal and the lungs. The blood is not coagulated. On man, when six or eight grains in a wine-glass of water are taken, a sense of numbness is felt on the lips and in the mouth, followed by a sensation of coolness. If the stomach is empty, slight nausea, and an uneasy sensation in the abdomen follows, with vertigo, ringing in the ears and slight deafness. When swallowed by accident, or design, the mucous membrane appears as if brushed over with a strong solution of nitrate of silver, and becomes hard and dry, like leather. This change in the condition of the mucous membrane, is due to the power of carbolic acid to coagulate the albumen of the tissues. From medicinal doses, a cooling, grateful effect is felt in the stomach. Cases of poisoning have resulted from local applications. The warnings of danger, which may be expected when the remedy is brought in contact with the tissues at any point, are, besides the local irritation, sudden vertigo, contracted pupils, pallor of the face, difficult respiration, and feeble circulation.

When the dose is a fatal one, unconsciousness quickly follows; the breathing becomes stertorous, the surface grows cold, action of the heart more and more feeble, and death finally occurs from failure of respiration. Convulsions occur in animals, but in man this symptom is lacking. The poisonous effects of carbolic acid are remarkably uniform for the same dose. An ounce or more, taken by an adult, produces an intense burning pain in the throat and œsophagus, followed by staggering as from intoxication, and then complete

insensibility. The face is pale, lips and hands livid; the pulse, sometimes above and sometimes below the normal rate, is soft and compressible; respiration stertorous, tongue swollen, and a discolored foam on the lips. The skin, breath, and urine, smell strongly of carbolic acid. Death has occurred in a few minutes; in most of the fatal cases in from one to three hours, and they hardly ever live two days. It affects the urine, even when applied locally, and one of the earliest indications of toxic action is a dark greenish, blackish or smoky hue of the urine. Städeler claims to have discovered carbolic acid in normal urine, but this is disputed. In cases of poisoning, the stomach should be emptied as soon as possible, and albumen in the form of fresh eggs, largely diluted with cold water or milk, freely administered. Saccharate of lime is a chemical antidote, and in cases of poisoning may be used freely. Oils and glycerine should not be given, because they favor absorption, but vegetable demulcents used freely, in order to protect the mucous membrane as much as possible. Atropia is a physiological antagonist of great value. The application externally has sometimes been fatal. Three women used crude carbolic acid for itch, mistaking it for sulphur ointment, applying it all over the body with a sponge. One died in three hours, another in two days, and the third recovered after an illness of three weeks. Another case of a female child, who sat down upon a block which had been freely sprinkled with a solution of an ounce of acid to one quart of water. Blistering, followed by ulceration of the labia and buttocks took place, and the child died on the tenth day.

For internal use, the dose is from one-fourth to two grains, in a wine-glass of water. One or two drops in a glass of water will arrest nausea and vomiting. Cholera morbus and cholera infantum are frequently checked by its exhibition. Eructations of gas, and flatulence, due to fermentation of food, are arrested by it. Inhalations of carbolic acid spray, of the strength of one per cent., are useful in chronic nasal catarrh, hay fever, and whooping-cough, which is said to be due to the fact that it destroys the minute organisms which cause the morbid action in these maladies. Schnitzler, of Vienna, employed the subcutaneous injection of it in more than 100 cases of consumption, using from one-eighth to one-fourth of a grain once, and in some cases twice daily. In many cases

the fever lessened, pulse became slower and stronger, and night sweats diminished.

Based on the germ theory of disease, it has been used with some success in typhoid fever, diphtheria, scarlet fever and erysipelas. In parasitic skin diseases a weak solution is very serviceable. It is largely used in surgery in carrying out the antiseptic system of Prof. Lister, who, believing that sup-puration, pyæmia, and various other troubles connected with open wounds, arise from the irritation of minute germs contained in the air, devised a process by which the air, before reaching the raw surface, is filtered through carbolic acid, and thus deprived of its irritating properties. He prevents the access of air during operations, by surrounding the part with an antiseptic atmosphere, composed of a sprayed watery solution of carbolic acid, 1 to 40. The instruments and fingers of the surgeon are washed with carbolized oil, and the arteries tied with carbolized catgut ligatures. By adopting these precautions, and the careful dressing of wounds, he has obtained excellent results, not only after ordinary operations, but in chronic abscesses, and various diseased conditions connected with the joints.

Strong carbolic acid applied to the surface of healthy skin, causes an immediate tingling and burning sensation; the spot becomes white, and the skin around it is tinged with red; the symptoms are similar to those resulting from the application of a powerful caustic. In a few days there is exudation from the surface, sometimes dry and scaly, but frequently there is formation of pus. Dr. Bill was the first to demonstrate the anaesthetic properties of carbolic acid. He states that "by applying a solution of it to the integument, insensibility to pain may be sufficiently induced to permit free incisions without suffering." It coagulates blood, but does not stop bleeding. In solution, it coagulates albumen, arrests fermentation, instantly destroys the lower forms of animal and vegetable life, and in very small proportions prevents mouldiness in vegetable juices, and protects animal substances from putrefaction. In a solution of 1 to 500 it destroys vegetable mould, and is equally destructive to minute organisms. According to Dr. Neuman a solution of one per cent. is sufficient to destroy bacteria. It was mentioned here, last year, that bacteria had been seen crawling over crystals of carbolic

acid. I think the crystals, like those of many other acids, are inert, and must be in solution to produce an effect. It is very certain in many cases we get better results from a diluted solution than from full strength.

It seems to have the effect of promoting growth of healthy granulations, and hastening healing processes of wounds. It relieves pain without causing inflammation and arrests suppuration. Its application should be repeated as long as pus is formed on the surface of the wound, but should not be applied so long as the eschar from the former application remains attached. It is an irritant, and if applied long enough to the skin will cause sloughing. It is an escharotic, and if applied to the integument or mucous membrane, produces a burning sensation of short duration, and there is formed a whitish superficial eschar, said to be due to the coagulation of albumen, which subsequently becomes brownish and drops off. As regards the strength in which carbolic acid should be used, it must be governed by the exigencies of the case, and the judgment of the operator. For external use where escharotic action is desired, as in gangrenous or specific ulcers, it may be used in the strongest liquid form; but for ordinary skin diseases, a solution of from one to five per cent. is sufficient, also where a gentle stimulation is desired in order that the parts may take on recuperative action. Where prompt, decisive action is required, and heroic treatment demanded, it may be used full strength, but where only gentle stimulation is desired, a five per cent. solution is sufficient. Ulcers and suppuration, whether on the outer surface or from the mucous passages, are benefitted by its use, and fistulous ulcers, especially those connected with the mouth, are generally controlled by it. It has been highly recommended as a dentifrice in carious teeth and offensive breath. On account of its anaesthetic properties it relieves pain caused by an exposed pulp almost instantly, and is useful to apply to the pulp before applying arsenic, when it is necessary to destroy it. Some good operators claim that they are able to extirpate the pulp alive, almost painlessly, by working carbolic acid in between the pulp and walls of the canal with a fine broach.

Where the nerve is exposed, and it is desirable to save it alive, it should never be used full strength, as its escharotic

action may cause sloughing, and being confined under the material used for capping, the death of the entire nerve is apt to follow; but a solution of one to five per cent. may be used with great benefit in such cases, as it is a gentle stimulant, slightly antiseptic, and will not cause sloughing and death.

Applied in full strength to a cavity just prepared for filling, a painful burning sensation is experienced for an instant, and the cavity is not only less sensitive, but that portion of the tooth seems to lose a portion of its conductivity, so that it is less sensitive after being filled than it would be if it were not used. This is said to be due to its coagulating the contents in the ends of the freshly cut tubuli, and thus breaking the connection of conductive power between the filling and the nerve. It is also claimed that its use in cavities before filling, renders inert any small particles of decayed matter that might possibly remain. Brophy says: "It is a most excellent remedy to apply to carious teeth during the process of excavating, to enable us to more clearly see the extent of the caries; in many cases we are surprised, upon moistening the cavities with it, to find carious tissue, which, if permitted to remain, would soon render another operation necessary."

Sensitive cavities are rendered much less so by applying carbolic acid, full strength, then inserting a gutta-percha filling; allowing this to remain a few days, the cavity may be excavated with very little pain. It can be used in this way as an obtunder without endangering the pulp.

It is an excellent dressing for nerve canals after removing the pulps, as it closes the ends of the tubuli by coagulating the contents; but as in destroying the pulp we sometimes destroy the contents of the ends of the tubuli, or the ends of the so-called soft fibres of the Tomes, it would be safer to slightly enlarge the canal so as to reach what has been called the "dead line," before applying the carbolic acid.

It is the custom of many operators before filling nerve canals to close the apical foramen with a small pledget of cotton, saturated with carbolic acid, on account of its antiseptic properties. This is condemned by some, but where carefully done, the results are almost uniformly good. It has been claimed that a saturated solution of iodine in creosote or carbolic acid has been successfully used in cases where there is wasting of the gums and processes, with ex-

udation of pus and loosening of the teeth, changing the pus-producing to a plasm-producing surface. It stimulates those parts which are weak, but still have vitality enough to be restored, and destroys those which have not. It should not be applied oftener at first than once a day, and after a few applications once in two or three days. It should be applied carefully, to avoid coming in contact with healthy parts, and covered with a saturated solution of glycerine and tannin.

In the treatment of nearly all cases of abscess, where it is not accompanied by necrosed bone, carbolic acid may be regarded as nearly a specific, but where necrosis is present other treatment is indicated. In using it where it comes in contact with the skin, its caustic action can be overcome by rubbing the parts with oil. In the treatment of alveolar abscess, the dentist comes to regard it as a sheet-anchor. Many other remedies have been used, but none of them seem to take its place. There is a diversity of opinion concerning the strength of the solution to be used in such cases. Where there is a fistula I always use full strength, pumping it with a piston through the root, until it comes through the fistula clear and free from pus. If necessary I repeat it in two or three days, but rarely have to use it more than twice. It should not, however, be used until a disinfecting agent has been applied in the root, otherwise the effete matter in the tubuli will be coagulated, and remain to give rise to trouble through the tubuli into the lacunae and thus through the cementum. These are dead men that sometimes will not rest quiet in their graves.

The uses of carbolic acid are so numerous as to make it impossible to refer to more than a few in a paper of this kind. In very small quantities it is azymotic, *i. e.*, fatal to all the lower orders of animal and vegetable life; it is also antiseptic, *i. e.*, opposed to putrefaction or decay, even preserving the organisms which it kills. By good authorities all epidemic, contagious and infectious diseases are believed to be zymotic, *i. e.*, of the character of a fermentation dependent upon living organisms; now as all the processes of decay and putrefaction are dependent upon fermentations, which are caused and kept up through the agency of cell-life, or organisms of a low vitality, in fact are also zymotic, a good key to

its powers and uses is at once obtained, and at the same time a good guard against its misapplication.

The hurtful material in foul emanations and foul air may be inodorous and insensible, but is endowed with vitality, and the laws of nature tend to direct the material to a soil and climate fitted for its functions of germination and reproduction. If the azymotic could be distributed in the same way, there would soon be an end of zymotic disease, but with it an end of all fermentation and an end of the present order of creation, in which fermentation performs an indispensable part.

Since writing this paper I have been informed by Dr. T. H. Smith, of Bloomington, Ill., that common vinegar is a perfect antidote for the action of carbolic acid, internally as well as externally. I have had no opportunity to verify his statement with regard to its internal action, but in several cases externally it has been applied with the most satisfactory results, stopping the action of the carbolic acid at once, and no unpleasant effect following.

DISCUSSION.

ATKINSON, W. H.—I take occasion to say that that paper impresses me as the highest on the subject of any effort I have ever come in contact with, and indicates a profundity of research, acumen of mental sharpness, and knowledge of molecular movement that we seldom see even among men who study molecular effects. If we needed any paper to establish the fact of our Society being a scientific body, I would advise the publication of that in our transactions; not only so, but in pamphlet form, so as to get a greater distribution than our transactions would ever find. It is dispassionate, cool, intelligent, and in my estimation without a parallel in medical or therapeutic literature. I feel very happy to have seen our body grow up to the patient hearing of such a paper.

There are, however, one or two suggestions in the paper, as to dealing with exposed pulps, at which we had better take a second look. The assertion is made that a five per cent. solution is the one to obtund sensibility rather than the pure acid of any higher degree of aqueous solution. The

reason for that is, the coagulation which is so sure to take place between phenic acid and albumen does not take place when it is brought into contact with fibrin; and when the scab of converted albumen has been formed, it should not be removed until sloughed off by the healing process. This doctrine is born of a molecular change that has lately been brought to our observation, and is resultant upon the discovery by Carl Heitzmann of protoplasm and the formation of tissue elements out of protoplasmic bodies by a series of steps, until they are perfected in the various tissues: As exemplified where nutrition is arrested by reversal of those steps so as to take down the tissue step by step, in accordance to the inverted order of demand of the typical dominion of the tissues. Whenever a part of a pulp has been converted into connective tissue proper, that portion ceases to be able to go further down the scale of molecular change by which the tissues are produced, and then we get calcification in secondary dentine, or maybe the disturbance may induce pulp-stone. We may induce that which is preferable to pulp-stone; we may induce secondary dentine in which, if it occur simultaneously, the deposit will be so graduated as to allow the pulp to remain alive.

There is an advantage in the paper and discussion without taking notes, because it avoids so much elaboration of the real law of how we shall behave ourselves in the presence of great mass presentments, capable of being seen without the application of the microscope, that I feel it is really well worthy of attention. And while I am on the floor, lest you think this last remark playfully made, and I didn't mean it, and implied that he didn't think carbolic acid was the only true anæsthetic, let me say either the carbolic acid or the hydro-carbons, as they are called, would answer the purpose. He has already said, or intimated, that the objection to creosote was its odor; that it might be, with that exception, used. So far as phenic acid is concerned, it has also an unpleasant odor but less in degree.

It really opens to us a door of molecular changes in a very quick way, either inspirationally or by cunning, I don't care which. If we will study these changes so as to know what saturation is (saturation

means satisfaction to a bond of affinity resident in the remedy that acts upon the substance or tissue), then we will get at a foundation and be able to understand these processes of the science we have not before been able to comprehend.

FRENCH, F.—Can you tell me why a full strength solution is not acid and the dilution is?

ATKINSON, W. H.—That is new to me. I didn't know it. I accept the fact, if the essayist has been convinced from his observation; I accept that on his authority. There is a field that I might enter into, but I don't wish to do that because the point is not referred to. If I did, we would see what the movements of life are (and it is a very deep question), and those of you who are aware of my objection to the classification of acid and alkali will see another reason why I cannot get my own consent to go off half-cock. The fact is, I am not satisfied with the old nomenclature, and I am feeling for something that is better, and this is one of the examples that will justify me in not *accepting* in full the idea of everything being acid in the definable sense, that has heretofore been called an acid.

BROWN, E. P.—It was known three or four years ago, and published in the medical journals, that carbolic acid had no reaction on litmus paper, but Dr. French has the honor of the discovery that a five per cent. solution has an acid reaction.

PROFESSIONAL DUTIES AND PRACTICAL SUGGESTIONS.

By CHARLES E. FRANCIS, D. D. S., M. D. S., New York.

SECURING to members of the human family their organs of mastication in as perfect condition as possible through the period of their earthly pilgrimage, is the highest aim and most earnest desire of the dental surgeon.

This, to be successfully accomplished in these times of physical degeneracy, where exalted types of civilization and refined culture sway both public and individual minds—where hygienic laws are lost sight of in morbid desires to gratify acquired tastes and sensual caprices; or a pampering to habits of extravagance that arbitrary fashion has created, will often require a degree of wisdom and manipulative skill which comparatively few individuals naturally possess.

Even though fitted for their calling by systematic educational training, and favored with opportunities afforded by an extended experience, many of our specialty are sometimes sorely perplexed with difficult or complicated cases which come to them for treatment, and not unfrequently are they disheartened to meet with failures when their best efforts have been expended in hopes for success.

To say that a dentist's life is "smooth sailing," and his duties "simple and light," is to express an opinion as absurd as it is erroneous. On the contrary, it is a life of perpetual anxiety and constant strife. If faithful to his calling and the best interests of his patients, his chief and ardent desire, the dentist will devote himself assiduously to his duties and improve every opportunity for increasing his store of professional knowledge, that by intelligence thus gained he may be enabled to more perfectly perform his operations; more clearly foresee contingencies, and best determine just what

course of treatment will, in the diversity of cases presented, insure the most satisfactory results.

It is not always wise to jump at conclusions hastily, or to decide important matters with little or no consideration. An error of judgment: an opportunity lost or unimproved; or even an operation improperly managed may be the cause of serious trouble and perhaps irreparable mischief.

It is evident that the progressive members of our fraternity fully recognize the need and value of the highest order of dental service to the public, and how dependent all civilized communities are upon such service for comfort, health and longevity. The fact of such recognition is demonstrated by the efforts constantly being made for improvement in all departments of dental practice and the earnest labors for educational advancement. It is also evident that the spirit of progress is more clearly manifested as each successive year rolls on, yet, to the ambitious, the goal of professional excellence is still in the distance.

In efforts towards advancement there is a tendency on the part of many of us to bend our energies in some particular direction, failing to look about for the purpose of seeking broader or safer ways which might lead to the point we are striving to reach. We sometimes seem to imagine that there is but one fixed course to pursue, so with this single idea in mind we boldly press forward, overcoming as best we can whatever obstacles may beset our path, yet not without making some misstep or beating some inglorious retreat.

Individual members of our specialty in their professional deliberations wander in different directions, exhibiting diversities of opinion in regard to methods of practice, and the treatment of special cases brought before them. Particularly is this noticeable at our associate gatherings where varied and antagonistic opinions are expressed with such decision, and advocated with so much force that many a hesitating listener is seriously perplexed to decide who are the wisest counsellors, or what methods are safest to adopt. Of course it is not to be supposed that all people can think alike or entertain a common opinion in regard to all things; but it is not necessary to fortify ourselves with ultra ideas and dogmatic notions as surrounding safeguards, in order to avoid accepting theories of others which do not favorably impress us; neither is it fair

to intimate that they who differ with us are devoid of sense. From the suggestions of our co-workers may often be gathered many grains of wisdom, even though in some instances their statements require considerable sifting. Ultraism is unbridled in its tendencies and apt to prove unsafe. Better that we be governed by circumstances and the modified influences occasions suggest.

As has already been stated, the highest ambition of the dentist in his official capacity is to insure to his patients as many of their natural teeth as possible and keep them in a condition of health and usefulness. This often involves the exercise of good judgment, great care and fine artistic skill, together with the ability to proffer the most sensible advice that can be bestowed upon patients for their daily consideration. Of all ages and in different conditions of health, do patients come to us for advice and treatment, and of course must be considered and treated in the condition in which they present themselves. Some of them are splendid specimens of the "genus homo," robust and full of physical vigor, having inherited from a race of hardy ancestors constitutions more valuable to them than anything possible for wealth to procure. In such cases we may expect to find the organs of mastication exceedingly compact in structure, displaying a coating of enamel of adamantine hardness. Such teeth are easily cared for and ordinarily require little attention on the part of the dentist, although cases are not uncommon where teeth perfect in arrangement, as also in form, color and texture, have, from habitual neglect, become so loaded with incrustations of calculus and other accumulations as to seriously impair their integrity and lessen by many years their period of usefulness.

But individuals who are blessed with perfect dentures are by no means the class who usually visit the dentist for treatment. They who fill our chairs are not so greatly favored. Children are brought to us who even before three summers of their lives are completed have experienced the tortures of odontalgia and their teeth found defective at many points. Patients come to us with teeth in various stages of decay; teeth badly worn, jagged or much broken away; teeth with enamel abraded or partly decalcified; teeth girdled with caries or perhaps reduced to mere crownless roots. They

come to us with sickly dental pulps, or pulps devoid of every spark of vitality. They come driven by the sharp, merciless agony that indicates pulpitis, or the deep throbbing pain that periodontal inflammation occasions. We have also numberless cases of alveolar abscess and facial neuralgia; alveolar absorption and exostosis; epulis, fungi and other abnormalities. We have to deal with dental irregularities of every sort and grade; with contracted dental arches where teeth are sadly crowded together, distorted, deranged and much out of normal position. Teeth too, exceedingly incorrect in articulation, with perhaps the inferior maxilla dwarfed and the under teeth far inside the line of the upper ones forcing the latter forward with such frightful prominence as to prevent the lips from closing together. Cases also where the inferior maxilla is elongated or over developed and the under teeth projecting far outside the upper ones, giving the chin undue and ungraceful prominence. Cases are quite common where in second dentition the teeth are found decayed almost as soon as erupted—teeth which from ill-health, or some systemic disturbance during the period of their calcification, were malformed or impoverished. Also teeth dotted with numerous enamel pits or marred by deep open sulci showing enamel fusions incomplete and imperfect. And even where teeth are passably well calcified, lengthy periods of sickness, and neglect to care for them, may result in their ruin. We are daily confronted with patients whose teeth bear evidence of unpardonable neglect; the interstices of which are found loaded with extraneous accumulations; or the enamel stamped with dark, repulsive crescent shaped stains along their labial and buccal borders.

Notwithstanding the many teachings and admonitions on the part of our fraternity, the majority of people in all communities are habitually careless or negligent in the care of their masticators, and as a consequence comparatively few individuals witness the anniversary of their twentieth birthday with perfect dentures, while many lose half their complement before this period of life is reached.

For the management of the many cases that come within the province of our specialty, no fixed rule can be stated that will answer for them all; yet certain principles exist which, if rightly understood and intelligently applied, would

greatly aid us in our efforts to equal each occasion, and encourage us to hope for good results.

The first duty we owe our patients is to impress upon their minds the necessity of keeping their masticators in a condition of cleanliness. It has been written that "Cleanliness is next to Godliness." Certainly, with the teeth, it is their only hope of salvation. People usually shirk this important duty. Some few cleanse them with an approximate degree of thoroughness, while many do it as if a disagreeable task which they are inclined to hurry through with as quickly as possible, and perhaps do this little at times when the least benefit is gained from the operation. Very few individuals know how to manipulate a tooth-brush skillfully or effectively. A few rapid horizontal dashes and a possible "promise," but nothing more. A tooth-brush should be used much as if the bristles were a bundle of tiny tooth-picks, and be patted gently against the teeth on all sides with a view of freeing the interstices from extraneous collections. This should be followed by much washing and rinsing with tepid water. A simple dentifrice may also be employed to advantage, and if injury from acidulated secretions be observed, liquor calcis, castile soap or some other mild alkali may be used. Were it not for the fact that proportionately so few individuals understand at what times during the twenty-four hours of each day their teeth most need brushing, it would seem almost needless to state that our patients should be instructed to unflinchingly cleanse their teeth prior to retiring at night; and they should know the evil consequences of neglecting this duty.

Parents should be made to comprehend the importance of giving their children's teeth attention at an early age, and of keeping their deciduous teeth preserved until time for their successors to appear. If suffered to decay, their usefulness is destroyed and digestion is impaired. The pain they occasion results in loss of sleep and an undue strain upon the nervous organism. If prematurely removed, the alveolar border is disturbed and in some degree arrested in its development, the dental arch becomes contracted and the new teeth are crowded out of their natural position. Irregularities thus occasioned should be timely corrected. Sometimes the result is best secured by the removal of two or four

teeth, but more frequently regulating appliances are required to expand the dental arches and draw the teeth into line. Over-crowded teeth are liable to decay on their proximate surfaces and require relief, and especially so where unmistakable evidences of dissolution are visible. Twenty-eight good sound teeth are of infinitely greater value than thirty-two that are defective and loaded with fillings. In endeavoring to save too many, sometimes too many are lost.

Where extraction is decided upon, the most defective teeth back of the canines should be sacrificed. The sixth year molars are usually the most impoverished and first to give out.

Our patients should be taught the importance of having their teeth examined at somewhat frequent intervals and before caries or calculus can have caused much mischief. The "stitch-in-time" principle is as applicable to teeth as to anything else.

In preparing cavities for the introduction of fillings, thoroughness should be conscientiously observed. Care, of course is necessary, to avoid wounding pulps, but the walls and margins of a cavity cannot be too nicely prepared. If kept dry during the process of preparation they can be excavated with more safety, greater rapidity, and less pain to the patient; hence the rubber dam will in many cases prove exceedingly serviceable.

As regards the importance of keeping cavities dry when introducing stoppings, it seems hardly necessary at this period of dental progress to intimate that moisture should be carefully excluded in all cases, regardless of the material used for this purpose.

In a choice of material for filling cavities, a more than ordinary degree of good judgment is sometimes requisite. The age of the patient, the condition of health, quality of tooth-structure, location of cavity, and other things are to be considered.

Cavities should be filled with whatever material will, under the circumstances and peculiar condition of each case, best keep them. As a rule, gold is unquestionably the most suitable material employed, but in some instances other fillings serve a better purpose.

For deciduous teeth, plastic stoppings are advisable.

Gutta-percha stoppings, if well impacted, seal cavities quite perfectly and will keep them in a state of preservation from two to ten or more years without changing, depending, however, much on the location of cavities and exposure to attrition. It is easily introduced and can be readily replenished when worn away. Oxy-phosphate of zinc will in some mouths keep nicely for several years, but as a rule needs frequent replenishing. For frail walls and for badly broken teeth it answers a fair purpose and if occasionally examined and kept in repair will prove quite serviceable. In using this material in approximal cavities extending quite to the gum, it is safer to line cervical walls with gutta-percha stopping. Nicely fitted gold caps or crowns securely anchored to large zinc fillings will prevent them from wearing away.

As regards the use of amalgam—probably more has been said for and against it than of any or all other fillings. Most of us have witnessed cases where it has perfectly preserved cavities from further decay for many years, yet sometimes it recedes from the marginal walls of cavities in which it is impacted and this constitutes the most serious objection to its use.

Gentlemen, a paper touching upon practical points pertaining to dentistry could be drawn to a wearisome or almost endless length. Not wishing to overtax your patience we will only add, that trials and perplexities will ever beset the dentist in his endeavors to fulfill the duties of his vocation. No matter how competent or skilled he may be, occasional disappointments will surely come, for infallibility is not a human attainment. And even though in some instances our best efforts are illy appreciated or poorly rewarded, let us be faithful to our trusts and so sustain the good reputation our profession has struggled to gain.

DISCUSSION.

ATKINSON, W. H.—I suppose that means me. If it does I will not disappoint him. He knows how cordially I agree with everything he says that comes within the range of the law governing healthy and diseased structure. In the main the paper is made up of doctrines that I wish had found

more lodgment in the minds of practical men. It requires the best kind of attention to a case to enable one to judiciously decide to extract a deciduous tooth that has lost the pulp which thereby prevents the normal retrograde metamorphosis to which the roots are subject in healthy pulps. The paper, if I understand it, makes a statement which is not true, viz.: that extraction of the teeth results in contraction of the superior maxillary, which is not true.

KINGSLEY, N. W.—Why the superior?

ATKINSON, W. H.—If you are an anatomist, you should not ask. It is no matter what the animus of the question is if it leads to the revelation of truth, of essential truth, to my own mind or the mind of the questioner. The man that asks that question is not a novice. There are certain things to which we have not given our attention so as to enable us to comprehend them. The contraction is always towards the unchanging bone; that is, in the upper jaw the contraction is from the outside inward. The alveolar border of the lower jaw contracts both ways. It is the portion that constitutes the socket in which the roots set that changes. The permanent teeth lay above that line in the child's mouth up to the time they come into place. We should say we were not running the risk of getting irregular teeth by premature extraction to the extent supposed. Every tooth is developed in a bony case; that is against the old time idea: they said there was a ligament that connected the permanent and deciduous tooth-germs. Late histology has proved there is no such connection there. If you remove the exterior portion of the bony case in which the coming tooth is forming, it depends upon the time that it is removed whether it amounts to anything serious; but it may hasten the eruption of the tooth. We have in our last *Dental Cosmos* very pretentious display of cases of bringing down what was called *undeveloped* cusps when the germ was not in normal position. It was an *unerupted* cusp. Men will take chances and make up their minds what to do without studying closely, and without taking the law as given us to-day into due account. That is the reason I wish to combat this idea of the premature extraction of the deciduous teeth, although I do not believe in always keeping them until they are ready to drop off by so-called absorption, which is nothing else than the

root returning to its embryonal condition. That is all it is. It is retrograde metamorphosis of tissue by going down the ladder of the histological construction. When we comprehend the operations that take place in the building and unbuilding of the tissue, we shall be better able to manage the aberrations that come to us for advice and treatment. But it is this alternation of the elements of tissues that we don't understand well enough that causes us to make mistakes. All that is physiologically lost is well. Tissue may be lost by chemical or mechanical violence; either may cut off the supply of pabulum to the pulp of the deciduous tooth. Then it is said to be dead, and normal retrograde metamorphosis called absorption ceases. If any portion of the dead tissue is carried away by absorption it is resolved back to the grade of chemical solution and not physiological solution.

FRANCIS, C. E.—Did you understand me to say the maxillary was contracted by the extraction of teeth?

ATKINSON, W. H.—You read so.

FRANCIS, C. E.—Excuse me, I will read: "I would like to ask if he has not witnessed a case where the temporary teeth have been extracted on one side and not on the other and the alveolar border is better developed on the side where the teeth were not removed than where they have been?"

ATKINSON, W. H.—Have you? I would rather you had not read that, because it modifies the statement somewhat; but nevertheless it does not render the law as different from what I stated it to be, and the word contraction is there. The alveolar border is always the flexible part of the jaw, the socket of the tooth, and that is the basis of all successful manipulation; that knowledge enables us to regulate teeth, without which we are not able to do anything intelligently. We don't know what to expect unless we understand that the calcigerous cyst in which the tooth is developed is absorbed as eruption takes place, and thus the type of the jaws is expressed. Hence those persons who have the teeth erupted rapidly will have that kind of flushed state of the myxomatous tissue constituting the gums that gives us more trouble than any other and induces premature decay. I don't say this in a spirit of querulousness. I know Dr. Francis very well and know his experience is large; but I

wish to call attention to this point that enables us to distinguish between want of development and contraction. Want of development simply because there was no demand to bring the pabulum into the needy neighborhood, and presents this alteration of tissues I speak of, as removing one (the old) and replacing the other (the new) formations. If even your molars alone are out, the jaws do not get the exercise that is necessary for the development and nourishment of the other teeth. If there be one specially sinful practice in civilization, it is that one of feeding soft pulpy food to children. I say let the children chew all the gravel stones they can get, chew marbles and chew wood; crack away at it as the animals do, and be blessed in the exercise. Suppose you try it and see.

KINGSLEY, N. W.—I interrupted Dr. Atkinson, for which I apologize. I ought to have waited until he got through his speech and then asked him why he used the phrase “contraction of the superior maxillary?” Why the superior? I ought to have waited. I asked the question, and I have no doubt it is one that the gentleman can answer without going out of his way to question my knowledge of anatomy. I would ask if he believes the condition described a result of the contraction of the superior maxillary, and if it results in the contraction of the superior maxillary only, and not of the inferior—or never of the inferior?

ATKINSON, W. H.—The maxillary is not contracted in either case.

KINGSLEY, N. W.—Then why talk about the contraction of the superior maxillary? Why did you refer to that alone and try to make it appear that the superior might contract and not the inferior? Why did you carry that idea there? If your language was wrong, please say so. If you say there is no contraction, I am satisfied.

ATKINSON, W. H.—I don't propose to get into anything like a difference of views. I was answering a statement of the paper. I was combating it, and in my answer to the question was lacking probably a little bit for want of quiet consideration to wait and see whether he was playfully asking the question, or for the sake of calling me out, as he has frequently done; but the point is this, that neither maxillary ever does contract. It simply may be prevented from get-

ting a full development by removing a stimulus to further growth. That is all I know about it. It was his statement I was considering until the questioning was made. I think I have justified that to every one who has been able to understand.

KINGSLEY, N. W.—I would be satisfied if Dr. Atkinson gives us to understand that the same rule applies to one maxillary as well as the other; that this condition may be the result of want of further development, but that the same law applies to the inferior as well as the superior. The point is: From his language there appeared to be a distinguishing between the superior and inferior maxillaries. Therefore I said: "Why the superior?" He put it in this form—that it was not contraction he meant, but want of further development. I say now, if Dr. Atkinson means to leave it with us that there is no difference between the inferior and superior, very well. That is perfectly satisfactory.

ATKINSON, W. H.—I don't make the difference. Nature makes the difference. The outer plates of the superior maxillary are the only ones that can waste; they have no direct connection with the palatal plates. These transverse plates form the roof of the mouth and never contract. This is the difference between the lower and upper jaw bones. There is a difference between the size of the alveolar arches; contraction is from the outside of the upper jaw, and from both plates of the lower, where it is reduced in size equal to the loss, rendering the under jaw thinner and less deep by the amount of absorption that takes place. There is that difference in what is called the "variable" and "permanent" portion of the maxillary.

GREGORY, N. B.—I would like particularly to know in a case where the temporary teeth are lost, how to keep the space for their successors?

KINGSLEY, N. W.: I don't think there is the slightest necessity for any effort, or any care, or any anxiety. You may extract every single one of the temporary teeth, and I believe it has been pretty satisfactorily settled that the maxillary will go on and develop, and in due time the permanent set of teeth will erupt in order, if the germs have not been disturbed by this process. If they have been disturbed they are as likely to come in in due order as if the temporary

teeth had not been removed. That is my own personal observation and the result of the observation of others.

GREGORY, N. B.—As Dr. Atkinson remarked, children often do come to us where the teeth have been extracted, and the spaces are occupied by permanent teeth, or have been maintained by articulation with teeth of the other jaw. The deciduous teeth should be kept in place as long as possible, thus leaving children a surface that they can eat better with than where some of teeth are allowed to be displaced.

KINGSLEY, N. W.—So far as the erupting of the teeth is concerned, I don't believe it has any effect. I watched in my own children, and in children in my immediate family though not my own, and going back to a period ten or fifteen years ago, I passed through weeks and months, almost years, of anxiety in relation to them, fearing there was absolute necessity for the extraction of temporary teeth long before the period of eruption, thinking there would be a want of proper development of permanent teeth when they came into place. I have watched to find this anxiety for nothing.

ATKINSON, W. H.—I agree with Dr. Kingsley when he says "in due time." My observation has been that the permanent teeth almost invariably are erupted a little in advance of the ordinary time.

KINGSLEY, N. W.—That is true. My own observation confirms it in almost every instance.

MINUTE ANATOMY OF THE HUMAN TOOTH.

A LECTURE.

By FRANK ABBOTT, M. D., New York.

MR. PRESIDENT AND GENTLEMEN OF THE DENTAL SOCIETY OF THE STATE OF NEW YORK :

I SUPPOSE you will all recognize the fact that in order to treat the teeth or any other portion of the human frame rationally, you should first understand the absolute structure of the part itself. In fact it is thought by many that no one has any right to operate upon teeth, or treat any other part of the body, unless he understands the structure of the part upon which he is operating. I need not tell you that it is necessary to understand the structure of the teeth perfectly in order to be able to treat them in a manner to save them. I need not say to you that it is necessary to *save teeth* in order that patients may have good health. You know it is impossible for a person's digestion to be in perfect order unless the primary digestive apparatus is in a good healthy working condition. If the teeth are out of order the whole digestive track must necessarily be more or less affected. It cannot be otherwise. That being the case it stands us in hand to be careful in the study of this organ, that we may know just how, where and when to work. We see before us a diagram of an upper central incisor tooth, cut as nearly through the center as I could conveniently cut it, magnified a little over 10,000 diameters. This diagram I propose to explain to you as clearly as my knowledge of the subject will permit. First we have the crown, that portion which projects out of the gum : the neck, to which the gum is attached, and the root of the tooth, which

stands in the socket formed by the alveolar process. The main portion of the tooth is composed, as you all know, of the dentine, or what was formerly called the ivory of the tooth. The crown is covered by the enamel, which is very much harder than the dentine, and put there for the purpose of withstanding the attrition of biting and mastication. This is covered, as you will observe, by a little epithelial layer. This membrane was discovered by Alexander Nasmyth in 1839, and is known as "Nasmyth's membrane." The root of the tooth is covered by a portion that is called the cementum, or *crusta-petrosa*. This more particularly resembles bone and contains more organic substance than dentine for its more perfect attachment to the periosteum, which covers the outside, or rather lines the socket in the alveolus, and is reflected upon the root of the tooth. The tooth was, up to 1678, I think, supposed to be a crystalline mass without any structure whatever. It was supposed to be a separate organ from the rest of the body, and simply stood in the socket without any attachment except mechanical. The same, for instance, that holds a nail when it is driven into a piece of wood, and expressed by the word gomphosis—a word still used by some anatomists in this connection.

In 1678, a German, I think he was, by the name of Leeuwenhoek discovered what he called "straight and transparent pipes" in the dentine in the teeth. He was the first who promulgated this doctrine. This man's name, therefore, we all should respect as that of the man who made the first recorded discovery of importance in the structure of these important organs. From that time up to 1839, this was the theory and understanding of the structure of the human tooth. The enamel was still supposed to be a crystalline mass upon the surface of the crown without any organic structure whatever. The "straight and transparent pipes" of the dentine were supposed to be filled with a jelly-like substance. That is all that was known of the anatomy of teeth until the year 1839, when Alexander Nasmyth, an Englishman, published the results of his researches in this direction. In his published work he gives drawings and describes a reticular structure of both the dentine and enamel; also what he calls a baccated appearance of the "pipes" of Leeuwenhoek, called by him, I believe, "tubules" or tubes. Mr. Nasmyth was as much at a loss,

however, as to the nature of the contents of these tubuli as Lceuwenhoek, or any previous observer had been. In 1844, Dr. P. B. Goddard, of Philadelphia, wrote a work upon the "Anatomy, Physiology and Pathology of the Human Teeth," in which work he quotes nearly everybody who had written upon the subject before him. He states that the reticular structure and the contents of the tubuli are a gelatinous mass, which is moistened by fluid which comes out of the pulp and works its way off into the dentine. He says nothing about the enamel particularly. What may seem a little singular to us is the fact that every observer up to within the last five years, ignored, comparatively speaking, everything that Nasmyth did, no credit having been given him by any observer, as far as I have seen. Had his discoveries impressed the dental student of his time as they do the searcher after the truth of our "day and generation," we would have known the structure of the teeth to-day very much better than we do. In 1878, a gentleman in New York, Dr. Bödecker undertook the study of the minute anatomy of the human tooth. He has written quite voluminously upon the subject, which may be found in the *Dental Cosmos* in several articles in that and the following year. He gives us drawings as well, from two hundred and fifty to two thousand diameters, one-fifth the size of the diagram which I have the pleasure of showing you here. He shows the reticular structure, which, in his opinion, is traversed in every direction by *living matter*, in which opinion I heartily concur. This living matter is believed to traverse not only the canaliculi proper, but the net-work which joins the canaliculi together. This frame or net-work is composed of minute tubes formed by the glue-giving basis substance. In these tubes is a fluid, in the center of which runs the living matter; the fluid serving both as a protector and an insulator. Against the outside of the sheath or tube the lime-salts are deposited, forming the substance of the tooth. The red lines you see running through the dentine, enamel and cement, represent the living matter. The finer white lines which are seen running between the canaliculi and joining them together, known as the reticulum, are believed to contain very minute fibers of the same living matter. As I before stated the reticular structure of the dentine and enamel were discovered by Alexander Nasmyth, in 1839, but it remained for Dr. C. F. W.

Bödecker to make the discovery that the reticulum contained living matter, and that the tooth was as perfectly organized as any other organ of the body. This discovery has rationally explained the peculiar and most acute pain produced by cutting a living tooth. Formerly it was thought that the pain was produced by a vibration of the fluid substance contained in the canaliculi by cutting with a fine instrument, the vibration being conducted along the canaliculi from the point of contact with the instrument to the pulp. As the canaliculi approach within a short distance of the enamel you will observe that they branch off or divide into two, and sometimes three, smaller canaliculi, in order to accommodate themselves to the finer structure of that substance. At this point, between the enamel and dentine, and all the way down between the cementum and dentine, we have what is called by Bödecker the "interzonal space," instead of the interglobular space, as it was formerly called. The living matter forms a very minute net-work at this space, in many instances so fine that it is impossible distinctly to see it. From this space it runs off into the enamel, to which it is distributed. Passing on through the enamel we see it entering and being distributed to Nasmyth's membrane. You will see in following around this interzonal space, little protoplasmic bodies, extending from it into the enamel some distance. These bodies are apparently irregular in form. They are granular in appearance, the granules being joined together by fibres. These are very small structures of themselves, it is true, but they all represent life. They are the living portion of the tooth.

Going back a few years we find in *Dental Surgery*, published by Tomes in 1873, I think it was, a description of what has since been known as "Tomes' fibres," which consist of short fibers drawn out of the canaliculi of the dentine. The process by which the discovery was made, and the fact established that very delicate fibers existed in the canaliculi, was somewhat as follows: A freshly extracted tooth was taken, its pulp chamber opened to its fullest extent, so that a good hold could be obtained of the pulp. It was then grasped with a pair of small forceps and gradually drawn out of the canals. Upon examination of the surface of the pulp thus pulled out, small fibers were seen extending out from the

surface in great numbers, too small, of course, to be seen with the naked eye. I believe the power used was about five hundred. Tomes was, and I believe still is, of the opinion that these fibers were branches of the nerve in the pulp. The cementum of the tooth, as you will observe, covers the root and laps on to the edge of the enamel, the enamel passing down on either side underneath the edge of the cementum joined to it. That is the point known as the neck of the tooth, where the gum is, or should be, attached. It is about a sixteenth of an inch long normally, in the mouth. The cement, as I said before, is a substance resembling ordinary compact bone; we find bone corpuscles distributed through its structure, with the numerous off-shoots usually present. Chemically it is almost the same as ordinary compact bone. Not like the alveolar process, which is known as cancellous bone, which we have a sample of in the diagram upon the outside of the root. Following this along we come down to the end of the root of the tooth, the point where the pulp enters. This pulp, as you will observe, consists of blood-vessels and nerves principally where it enters the root. The nearer we approach to the crown, however, the larger it grows, the excess being made up of myxomatous connective tissue. The bright red lines shown here represent the arteries, the darker red lines the veins, and the white the nerves. You will notice that the nerves beyond a certain point become red, or what is known as non-modulated nerve fibers. It is in this condition that they pass on through and between the odontoblasts (which are seen surrounding the entire pulp) into the dentine. Odontoblasts (tooth-formers) are a row of beautifully organized bodies located on the outside of the pulp, next to the dentine. They have a reticular structure, in the meshes of which water is held, until it is displaced by lime-salts. While one row of odontoblasts is being converted into dentine by the deposition of lime-salts, another row is being organized and will take their place in regular order. Thus it is that the pulp is constantly becoming smaller and the dentine thicker. You will observe that the odontoblasts have a perceptible nucleus. It is at that point that the lime-salts are first deposited, and it undoubtedly remains the nucleus after the odontoblast becomes a dentine cell. And I have no doubt but that the delicate reticulum of the odontoblast still exists

in the dentine cell, but so very delicate that the highest powers of the microscope fail to bring them to view. I want you to remember that the first row of odontoblasts formed is immediately under the enamel, and as each row becomes dentine, another row is formed back, or inside of it, so that the growth of dentine is from without inward, while the growth of the enamel is from within outward. The crown of the tooth with its enamel is all formed before any work is done upon the root. The point where the finishing touches are put on is the extreme end of the root, as far as outward appearances are concerned.

The President has asked whether in cutting a tooth the small protoplasmic bodies seen upon the diagram, projecting from or forming a part of the interzonal space in the substance of the enamel, are to be seen with the naked eye. No, they are altogether too fine for that, but they are readily seen with a power of 500. When the President asked the question I was about to remark that nature is always at work, so that work is constantly going on in a healthy tooth in a quiet and imperceptible way. But under the slightest irritation, either from friction, caries or any other source, the odontoblasts become stimulated and the process of dentine forming is renewed with vigor. This is the proper fulfillment of the old adage that "self-protection is the first law of nature." It is under such conditions that we have what is known as secondary dentine deposited. According to Bödecker the living matter that runs into the canaliculi is made up from the sheaths or outer portions of the odontoblasts, and apparently passes between them, instead of out of their ends, as described by Tomes. Outside of the tooth, as you see it stands in the socket, you will observe the periosteum, which is this portion colored purple in the diagram. This membrane is very vascular and exceedingly sensitive. I wish to call attention to the arrangement of its fiber. From their attachment to the root of the tooth, they run in an oblique direction toward the crown of the tooth, to the point of attachment to the side of the socket. By this wise arrangement you will see that the tooth is always suspended in a sort of sling, so that in biting the fibers stretch, and as soon as the pressure is relieved they contract again, giving the tooth more or less of an up and down motion in the socket. But for this wise provision of

nature, if our teeth were solidly held in the jaws, we would probably become toothless much younger than we now do, as we would break them to pieces in biting any hard substance.

Mr. President and gentlemen, I have gone over this subject in a very hurried manner, and may have failed to speak of many things in connection with the anatomy of the tooth that may occur to some of you. I will therefore be very happy to answer any questions any of the gentlemen may wish to ask.

DISCUSSION.

BROCKWAY, A. H.—Will you describe the process of caries?

ABBOTT, F.—We will suppose, for instance, that we have a sound portion of tooth, opposite that cavity of decay. We will deposit upon it a certain amount of food or any substance which would tend to produce either lactic, hydrochloric, sulphuric, or any acid that would have an affinity for the lime-salts of the tooth. The food, constantly fermenting and forming acid, is kept for a long time in contact with the surface of the enamel, eventually a solution of the lime-salts of the surface begins. The next step is an irritation of the living matter of the enamel. The next is an inflammatory reaction of the contents of the canaliculi and a swelling of this substance, which displaces the lime-salts; then a return of the organic portion of the enamel to the same condition it was in before the lime-salts were deposited, *i. e.*, its medullary or embryonal condition. Upon the surface of a decayed spot the lime-salts are washed or dissolved away by the action of the fluids of the mouth, or acids. They both probably play a share in their removal. When the inflammation reaches the dentine it increases in intensity in proportion to the amount of organic matter in the dentine as compared with the enamel. The acid (always present in a cavity of decay) being the constant irritant, probably assisted to some extent by the micro-organisms found in such great numbers and which feed upon the decomposing organic substance.

BROCKWAY, A. H.—What is the process of melting down?

ABBOTT, F.—It is generally understood that when living

tissue becomes inflamed, it changes from its organized condition to the condition it was in before it was organized for its special purpose, *i. e.*, its embryonal or medullary condition. In caries of the teeth the same changes take place, as I have before stated, the only difference between inflammation of soft tissue and tooth substance being, in caries the melting down of the glue giving basis-substance and the dislodgment of the lime-salts by the swelling of the living matter. Caries of cementum is the same as that of the dentine, differing only in its rapidity. There being more organic matter in the cement, the inflammation extends more rapidly and the tissue is destroyed faster.

BROCKWAY, A. H.—Is the process of decay always caused by an acid?

ABBOTT, F.—Always, primarily.

FRENCH, F.—Is the protoplasmic matter found in the tubuli of the dentine the same as we find in the fibrous structure of the enamel?

ABBOTT, F.—Just the same, only in larger quantities, and the same reticular structure, only it is coarser.

BROCKWAY, A. H.—If an alkali will produce inflammation in the other tissues, why not in the teeth?

ABBOTT, F.—It will if used strong enough.

BROWN, E. P.—While this beautiful illustration and plain description are fresh, I would like to suggest a question to determine some practical point right now. We understand by that shading that the structure is inflamed beyond the actually broken down tissue, do we not?

ABBOTT, F.—Yes, sir.

BROWN, E. P.—Is it safe to leave that softened-by-inflammation portion which may not as yet be broken down? Can we leave that there with safety? If you will answer that we will ask some more questions.

[HILL, President.—I learn that Prof. Wm. Hailes, jr., of the Albany Medical College, is with us, and I would beg to extend to him the favor of the floor.

HAILES, Prof.—Perhaps it would be fitting for me to say that while I am no dentist, I have a decided leaning towards dentistry. The structure of the teeth, the alveolar process, and the tissues associated with them, come under my observation several times yearly, in regular systematic course of instruc-

tion at the Albany Medical College, but since boyhood's days, almost, I have found great delight and satisfaction in studying the structure of the teeth. I thank you, and if anything occurs to me to ask or suggest, I will gladly do so, for I am in search of information, and you, gentlemen, are working in these matters.]

ABBOTT, F.—In answer to Dr. Brown, I would state that we will suppose, for instance, that this cavity is cut out in a proper manner for filling; perhaps one-half of the depth of what appears in the drawing to be broken down is cut away and a filling is inserted, so that it shall exclude all air and moisture from the cavity. This broken down portion, when the inflamed condition subsides, would be reorganized. The lime-salts would be re-deposited. This being a fact, it would seem to indicate in the strongest manner possible, that we should not always remove all tooth substance from the bottom of a cavity which shows signs of disintegration, knowing full well that if allowed nature will come to the rescue and restore the parts to a strong and healthy condition.

BROWN, E. P.—I refer to cutting away portions which may be just inflamed, and which will be exposed, after the insertion of the filling, to the acids of the mouth which originate the decay at the margin of the filling.

ABBOTT, F.—In answering that, I would say, such a thing ought not to be, to start with. Such a condition ought not to be left in the mouth. No operation in a cavity of a tooth, if it is properly done, will be left in any such condition.

BROWN, E. P.—That is what I wanted to know. I am in favor of cutting away, and I always expect to be, and I wanted to know whether there are any points in regard to cutting away. I want also to question two statements—Does it follow necessarily that no man is fit to fill teeth unless thoroughly familiar with what is here shown and described?—that you have that delicate manipulative skill that you can jam an instrument into the pulp and haul it out alive? We want to teach students this, but at the same time we want to teach them something else.

Another question—Did he say that the illustration was 10,500 diameters? I have no measure with me, but I know by my eye alone that it is not over 150 diameters. The observation may have been made over the lens, but if we place

10,500 human teeth across it, or attempt to do so, we will have them across the room. I ask Dr. Abbott if he meant that that represented 10,500 diameters?

ABBOTT, F.—Possibly Dr. Brown does not understand what is meant by diameters. The surface of this diagram is just 10,428 times as large as the tooth from which it was made. Of course it is not ten thousand times as long, nor ten thousand times as wide, but each particular part of the diagram is more than ten thousand times as large as the same part in the tooth.

BROWN, E. P.—What is the use of the expression “diameters?”

ABBOTT, F.—It is enlarged 10,500 “times.” if you chose.

BROWN, E. P.—We understand diameters as measuring across in any direction.*

ATKINSON, W. H.—Let us begin at the last as the answer to the answer: Dentists with only the endowment of genius and handicraft to fill teeth successfully, not knowing anything about their microscopic structure and not being fine histologists, *do* plunge into living pulps and tear them to pieces without knowing it.

This is a question or presentment of fact in many cases. That many men do fill teeth inspirationally and fill them carefully that could be justified by a well informed histologist. And they do instinctively obey the law which is open to the perception of him who is conversant with the tissue, although they could not justify their inspirational diagnosis and execution of the work.

My conscience will not allow me to let the opportunity pass without a word in justification of my loved fellow-seeker after truth in nature, Carl Heitzman, by saying that he does not present this diagram (nor Prof. Abbott either) as an actual representation of any section of any tooth in its socket, but that the principles involved in many thousands of sections, very carefully examined, are portrayed in this one glance much of the knowledge that has come to the world from the earliest examination of these tissues. It is hardly possible for Prof. Abbott not to make some mistake or leave

*Diameters—linear measurement; times—surface measurement. Times is the square of diameters; as, 10 diameters = 100 times, or 10^2 —[Com. of Pub.

some point untouched. He made one mistake. He made one mistake I wish to justify or disabuse the minds of those who might be misled. He included all this [pointing to the place in the drawing] as periosteum up to this myxomatous tissue. The tissue is so called that covers the bone, this being the representation of the bone. This is myxomatous tissue with a few fibers of connective tissue in it, but that is myxomatous tissue, showing the papillae of the gum, representing the mucous surface.

ABBOTT, F.—Thank you, doctor.

ATKINSON, W. H.—This is an impossible presentment, inasmuch as it has involved pathology as well as physiology. That being unfortunate, as the angels sent me to disabuse them and help to represent truly what they did see. If you see a tooth in the condition that is, you will not see the pulp like that. You have the secondary dentine drawn here exactly in line of the living matter. The nutrient process acts in the lines of least resistance. Where are they? In the protoplasmic strings and not between the living matter, that we call the solid part of the lime-salts. The difference between living and non-living bone. Dr. Abbott don't quite illustrate the point. He spoke of *bone* corpuscles. As long as we desire correct nomenclature let us have it:—These are *cement* corpuscles.

ABBOTT, F.—I corrected that.

ATKINSON, W. H.—That is my misfortune then. The bone corpuscles, they belong to the Haversian system, and if we wish to speak of that peculiar kind of bone: It is the cushion upon which the impact of mastication is received so as to distribute the force without injuring the surrounding part. Let us stick to it, but call it cement corpuscles. The bone corpuscles had died by their returning to the embryonal condition, which is not the medullary condition. Indifferently, Dr. Abbott called this embryonal and medullary tissue.

The pulp is myxomatous and vascular. These returning to an embryonic condition affords the mass out of which all tissue is formed. And that is the great secret of tolerance of teeth and bone, to interference from the outside. There is too much in this diagram that I have to cut out and a great deal that is presented to my perception during the examination that would not be present to the novice. I wish to thank Dr.

Abbott, wittingly or unwittingly, for telling the truth when he said Nasmyth's membrane did cover the enamel. He has here epithelia beautifully displayed on the surface. That is denied by some. If you look closely you will see those are epithelia that lay on the surface of the gum, and some that overlap each other. I defy any histologist to present a specimen in nature which does that. Let us refer to how this organism came into being and find if it be possible for the Nasmyth epithelia to be continuous tissue with those of the gum when this portion of the tooth was a mile under the surface that enclosed it. That tooth before it was erupted was enclosed in a bony cell, and Nasmyth's membrane was upon it then and continued down as far as the calcification had been effected, until it left an open end by reason of obedience to the typical law that governs the embryonal tissues and directs them to be placed so they may be in favorable circumstances to receive the exact quantities of lime-salts, phosphate and carbonate, so as to produce this structure by appropriation of the quantity that measures molecular changes. The crown of the tooth is first formed in this bony sack; then the roots form by deposit of lime-salts until the cusps impinge upon the pocket of bone, inducing absorption, and allowing eruption of the tooth by completion of calcification of the roots. Absorption of the bony sack is a process of breaking it down by a retrograde metamorphosis of the nutrient action and solution not only of the lime-salts but of the connective tissue proper, being resolved into embryonal structure which is easily carried off by the so-called absorption.

So much for an intelligent comprehension of the process of the coming from a fluid to a solid state of this beautiful structure we call a human tooth. It might be denied that inflammation were possible in enamel. I would have denied that myself in former years. But do you know what inflammation is? There has been no adequate definition of inflammation to this day unless we take the one of John Hunter, who gave it inspirationally. He said: "Inflammation is none other than the returning of the tissues to their embryonal condition." Under that definition Prof. Abbott has told you the truth comprehensively. We might go to the definition of the term and find it meant oxidation—properly, burning.

The next thing is *death*. When a dentist has excavated a portion of decay and come to perfectly healthy tissue on the margins of the cavity, it is not important to remove all softened dentine and expose the pulp, as you would if you cut all away. I have taken out amalgam fillings that were put over the decay when it was as soft as mush, that afterwards became flinty hard. The point of instruction I wish to convey as the richest gift of my own appreciation of these efforts is to fully emphasize the contradiction of everything that is in the old books and is outside of our latest inventions, and that is that which is called decalcification is simply a solution of the lime-salts *in situ*. They remain there and are organized on a lower plane. It may recalcify without taking the form of secondary dentine, or it may be that it goes on to the state of retrograde metamorphosis that enables it to obey the typical demand that it shall be like original dentine; so we have two kinds of secondary dentine, and that accounts for this hardening of the soft place. In the first place, let us reason: Where would they get the lime-salts in sufficient quantity to make above 60 per cent.—72 per cent. of lime in that substance there, 98 here? Where would we get the lime-salts, particularly without channels through which to carry it? I think the process of ratiocination will convince every man who can think at all that the statement is true. The lime-salts are in the leathery mass that we call decalcified dentine, and when that is shut off from the increment of impact of energy that induces the retrograde metamorphosis that is called inflammation—when that is cut off, the typical demand is able to execute its behest and reform this tissue so as to be a protection to the source of supply of nutriment to the balance of the dentine on demand. I can show you plenty of sections of teeth, even before the enamel has been disintegrated at all, that have been regarded as perfectly normal in physiological condition with enlarged infiltration of lime-salts in the part that was once pulp; and in a direct line with the source, following the line of the living matter, these dentine tubules and between these little living tracts between the so-called prisms of enamel, showing the line of this energy, whatever it was, that disturbed this action and awakened all the nutrient changes at this part; that it sent for the police and they went to work and barricaded against the increase of

the evil presentment. If you have comprehended what I have given you, you now have the alphabet of the whole matter. There is something more that I cannot resist the inducement to refer to—these beautiful representations that are true to the letter. How came they there? By some sort of disturbance that prevented the ameloblasts or dentinoblasts that are wrought out of the embryonic tissue that lays within the enamel cap, so that the regular calcification doesn't go on, and the cause is shown in normal calcification as far as the segmentation process. Here you get calcification in the full degree and you have more lime-salts than usual and less of the living matter, or you may have the same relative proportion of living matter and earthy matter and have a very different arrangement—that is to say, these protoplasmic strings are thicker and heavier. The calcification has gone on so that these lumps of lime are larger and not in accordance with the morphology of the enamel. One thing further, I have yet to see a human tooth that is devoid of some kind of disturbance of what we call the natural condition of the pulp. We think pulp-stones are rare. They are very common, and when you have cut as many teeth as Bödecker and others in the laboratory, and made examinations, you will be able to verify what I say. So, in civilization we may expect pulp-stones in any tooth we decide to extract and examine, and if we don't find abnormality, we may set it down for sure we have a healthier tooth than commonly comes in our hands for examination. The human mind has been induced to seek for the reason of things. I want to speak of the lack of use of the jaws as being the initiative of disuse that gives us pathology at all. Lest it may have escaped the observation of any that this coloring of the protoplasmic strings were meant to make it more apparent, I have said thus much. But you will see these white lines are not colored excepting in a very few instances where they first start off from a bundle of fibers within the tubules. These lines when they are heavy correspond with mucous threads and are explained by no other theory that I know of except the mucous threads. Owen represented them in his *Odontography*, but they never have been explained until the recent discovery of Carl Heitzman by the concurrent work of a pair of good fellows. In the enamel here you will see it on

examination; but don't be discouraged if you do not see it as clear as it is represented, for the reason, as I have said, that this is a diagram and not a portrait.

ALLEN, W. H.—Do you consider every tooth which has nodules of bone and spiculæ in the pulp has been in the abnormal state?

ATKINSON, W. H.—Yes, sir.

ALLEN, W. H.—Then you consider every tooth, or $\frac{99}{100}$ of them, in an abnormal state?

ATKINSON, W. H.—I do. I don't believe we have a perfect man or woman on the planet. If we had we would try if we could get them together and have a perfect breed.

ABBOTT, F.—When decay occurs very slowly a deposit of lime-salts by the pulp takes place on the side of the pulp-chamber immediately under the decayed spot, but if rapid or acute decay attacks a tooth, as is usually the case in young people, a deposit of lime-salts in the pulp-chamber does not take place.

ATKINSON, W. H.—These were called lines of resistance by the French, and they were supposed to be brought out by an effort of the pulp that was protecting itself. In fact now we have a good way of getting at this question by observation. If we study the ruminantia we may discover that they have no superior incisor; they have this secondary formation going on in the under teeth until they are worn out, so there will be no uncalcified tract in the body of the pulp-chambers of these teeth; only a little bit of pulp tissue will remain at the end of the root. I have offered a Delmonico dinner for any human tooth that had been so calcified that I could not inject between the old and new formation. I have reasons for that, that I have not time to give, but I hold the offer good. I do better than that: I keep that offer good, and a \$50 gold-piece to back it, for such a specimen.

PERKY, S. G.—I have been for a good many years in favor of the restoration of the shape of the teeth. It seems in this picture I see finally a convincing proof of the advisability of the restoration of the surface of the tooth. I want to ask Dr. Abbott one question—We are to understand the odontoblasts are still of course existing here—simply hidden. Why are they refilled?

ABBOTT, F.—One has lime-salts, the other not.

PERRY, S. G.—You say that is due to the return to the medullary condition. Will you point out the condition?

ABBOTT, F.—That represents the same condition you have in the absorption of the roots of temporary teeth, with this exception: you have a foreign substance coming in contact with the tooth, forming an acid. This acid dissolves the lime-salts primarily, and is a constant irritant as long as it remains there. In the other you have an irritation of the root of the tooth itself occasioned by the approach of the permanent tooth, which dissolves the lime-salts. These lime-salts are carried away through the circulation, and the roots of the temporary teeth are left in the condition they were in previous to the deposition of the lime-salts—its embryonal or medullary condition.

PERRY, S. G.—The best proof of this theory is the fact that the devitalized roots of temporary teeth do not undergo any change.

COOK, C. D.—One condition represented the dissolution of the roots of temporary teeth as physiological; the other is pathological, is it not?

ABBOTT, F.—Yes, sir.

HAILES, Prof.—I consider your remarks out of order, because I didn't suppose there could be any point more interesting. The gentleman who rose to his feet stated one process was physiological and one pathological. In studying the absorption of bone where it is not in connection with external air—in studying the process with the microscope, we find lines where the bone is becoming absorbed. There are series of bone corpuscles, called osteoclasts or bone-breakers; and I should imagine, although I have not given it personal attention, that there were some osteoclasts at work dissolving the tissue of the temporary teeth, because in lifting up one of the crowns after the root has become dissolved, you will find a series of excavations, and it looks as though it had been decayed. Where the caries is in connection with the open air, and we know there is present an irritating matter—a growth of fungus, leptothrix, etc.,—that is pathological, while the other is physiological. I should be unwilling to interfere with the discussion but I am just as much interested in this as you

are. I like to have these points brought up, for they are instructive.

ATKINSON, W. H.—I hope Prof. Hailes will not feel embarrassed. We wish to tap fountains of intelligence when we get near them, and we want to follow him and get his views, as I can testify that he is an earnest worker in this direction, and his last remarks convince us thoroughly that he is up in the other matter, although he didn't say he was a master in the histology of bone. That is what the books recognize as the only difference between its embryonal corpuscles by reason of the retrograde metamorphosis; and by this new nomenclature we have been helped, through discoveries by Heitzman.

ABBOTT, F.—I have been some months studying very carefully under the microscope the dissolution or absorption of the roots of temporary teeth. I had hoped long before this to have had my observations put in shape to have presented them to the profession, but unfortunately I was obliged to suspend operations for the want of a certain specimen. I have worked long and hard to find it, but thus far I have been unsuccessful. In Tomes' *Dental Surgery*, 1873, he gives a drawing of a specimen where absorption of a portion of the enamel had taken place. The process had stopped, and a re-deposition of lime-salts in the form of bone-corpuscles had occurred upon the surface. A specimen of this kind I am looking for. It is seldom that a specimen can be found where the enamel has been absorbed; and it is a question in my mind whether absorption proper of the enamel takes place, for you all know very well that before the enamel is reached an opening is made under the gum which admits food, saliva, etc. In which case it seems fair to suppose that a pathological condition takes the place of the previous physiological one, and we have a process going on which might more properly be called caries instead of absorption. It is not at all unusual to find a re-deposition of lime-salts upon the surface of the roots where they are protected from outside influences. I have a number of very beautiful specimens of this kind.

COOK, C. D.—I was going to ask Dr. Abbott if he didn't make a mistake in his statement in regard to Tomes' work of '73. Whatever discoveries John Tomes made,

were made and published about '48, and published also then ('48) in his lecture to the public. His *Dental Anatomy* was published, I think, in '52 in America, and in England a little earlier, and a later edition should have appeared at the same time, sufficient for America and England, in 1873.

ABBOTT, F.—The father and son together.

COOK, C. D.—The father and son appears, but the editing comes from the son.

ABBOTT, F.—He edited the volume of '73, I think.

COOK, C. D.—The original investigation was in '48.

ABBOTT, F.—Oh, yes.

HAILES, Prof.—Dr. Atkinson has referred very kindly to a little work which I have had the pleasure of doing in the matter of the minute anatomy of teeth and jaws, and I would simply say I think the best way for those who care to see some of it would be for me to ascertain from the Society at what time to-morrow morning it would be convenient for them to spend the time in examining some of the specimens. I would willingly bring half a dozen, and a microscope, and then submit them for your personal examination. I think this way would be more satisfactory to each one. Some years ago in working in bone it occurred to me that I might make an interesting and instructive specimen by preparing the jaws and teeth of some small animal, and in thinking the matter over I, partly by accident and partly from necessity, concluded that the most convenient animal for me to choose would be the common bat, which we have in numerous quantities here. And before I began to make the section of the jaws I injected the tissues with gelatine colored with carmine. Cutting through the thorax and opening the pericardium I cut the point of the heart off, and the blood in the body immediately ran out and the whole vascular system was empty and offered no obstruction to the gelatine. Immediately after the blood had all passed out through this divided heart, I introduced a canula through the left ventricle to the arch of the aorta, and with soft ligature I lightly closed the tissues around the base of the heart, and before *rigor mortis* set in I threw in warm carmine gelatine, injected by hand, and what surprised me was to find how perfect an

injection one can obtain in this way. In later years I have used water pressure, etc., and in no case have I made so beautiful and perfect an injection. Every part of the body—muscles, bones and teeth—was filled; it went everywhere. I had no idea of the treasure I possessed in that bat's head. I immersed it in alcohol, and some months afterwards I made sections of the upper and lower jaw. And let me give you the steps by means of which I made them, and they are at the disposal of any one who has an oil-stone and a bat. Injected the bat's head and divided the lower jaw at the median line. The bat's jaw is very nearly in the same plain, the molars and canines are in about the same line. I removed all the soft parts and prepared to grind it down with an ordinary oil-stone, rubbing it down slowly, first one side and then another, as you prepare a section of tooth, and instead of using water I used clove-oil, having dehydrated it previously. In a few moments you can rub the tissues down to a sufficient thinness to see the structure of the jaw. Having then rubbed down sufficiently, keeping in the mesial line, I was delighted. The whole inferior dental artery was beautifully exhibited, as I worked carefully in order not to destroy this artery. Mounting it in hard balsam I preserved it, and to-morrow I will bring the specimen for your examination, and I am sure it will win your admiration. I have studied it many a time, and it illustrates the precept that a thing of beauty is a joy forever. This specimen exhibits the inferior artery throughout its entire course and the method of blood supply to the molars and canines. The part that surprised me was the great vascularity of the pulp. The vessels were thrown out in beautiful loops and arches, and in fact carried nutriment and blood to the row of odontoblasts. The branches of the inferior dental artery are very long and thread-like and they run under three or four roots of teeth before they take a turn upwards at right angles. There is one molar that is particularly perfect. It has two roots plainly in view, and it forms an ideal picture. But what will interest you more as dentists is at the base of the jaw. On the other side are the germs of the permanent teeth, which are just visible, while the temporary teeth are cutting their way through and are projecting into the cavity of the mouth.

GOLD RESTORATION OF ABRADED DENTURES.

By E. PARMLY BROWN, D. D. S., Flushing, N. Y.

MECHANICAL abrasion, assisted by chemical erosion of the human teeth, is fast drawing its victims to a condition of helplessness, so far as ability to properly perform the important operation of masticating the food is concerned. We hear and perhaps know of cases where a ripe old age is attained where edentulousness has existed for a score or two of years; but investigation would surely prove that these cases are exceptions to the rule of loss of teeth—loss of life—unless artificial dentures replace the loss, and then a large percentage of substitutes for the natural organs only partially supplies the organs of nature.

“Diamond cuts diamond” is the general principle that underlies the mechanical abrasion, and when spots of dentine are exposed, the surface is softened or decalcified if acids are sufficiently present in the mouth, either in the secretions, the gums, or taken in food or drink—then the mastication removes the softened surface, only awaiting another chemical assistance to repeat the operation of destruction, slowly but surely dragging the victims to an untimely grave—for this manner of losing the teeth is less apt to be remedied by the substitution of artificial ones, before it is too late, as the process is so much more gradual and less painful than when the teeth are seriously attacked by caries and neglected to the critical point of being lost. The victim, year after year, calls forth less saliva to mix with the food, which prepares it for digestion, grinds the food less perfectly, until the teeth, worn down to the points of gum, make the operation of chewing so painful that it is, in extreme cases, not done at all, taking into consideration the pain produced by the ends of the canaliculi being kept open by the wear—thereby, in some cases, adding the pain resulting from mastication, and also the pain produced by acids.

Until cohesive gold became properly handled, no remedy was known for this unfortunate condition of the teeth of mankind. Taking into consideration the fact that the operation of extracting a mouth full of such firmly set roots, was one to be dreaded and generally put off from year to year, until the health of the patient was so impaired as to make life miserable, if not materially to shorten it.

The vital statistics of a savage island in the Pacific tell us that old age there is forty-five years, and that the natives actually die gradually of starvation, by feeding on roots to a great extent, thereby wearing the teeth entirely away. And in about the same condition is the Esquimaux, who tans his dog-harness and his moose-hide strips for his harpoons, by chewing them for weeks.

The habit of grinding the teeth together during the hours of sleep, or while awake, is, I think, the only other extensive cause of the subject of the paper. The loss by decay and extraction of many of the back teeth accelerates the process of wearing away, but the remedy is now at hand and the sooner taken the better. Crowns of cohesive gold built upon the teeth that require it, or upon all the teeth where all are worn, lengthening them from a thirty-second to three-sixteenths of an inch, according as the wear has progressed or the mouth requires opening to its normal position, in some cases relieving a distress occasioned by the want of contact of the jaws.

The time has arrived in the dental profession, well organized as it is to-day in our country, well equipped and well educated, when the wearing away of the teeth of the people should be stopped. At the present time our art gives us golden caps to check the advance of the ravaging foe. We are working in the present! The past and its lessons we have profited by to make the present as perfect as it is; the future will come with its dazzling improvements only in the ratio that we embrace the present, taking advantage of the harvest of knowledge we now enjoy. If we have gold, beautiful and cohesive, to place between the antagonizing precious dental pearls, let us prevent the repetition of the Kilkenny cat story, where the feline abrasion was so great that there was nothing but the cats' tails left, which gave the rats a chance to gnaw the master out of house and home—

let us prevent the abrasion of the teeth of man, until nothing but the roots are left, that the rats of disease and hunger may not gnaw him out of his earthly tenement before the full allotment of his years is completed, by inability to masticate his food, or consequent dyspeptic ravages.

The people want it done, and only want the proffered helping hand that says "I'll do it." He who can place gold in cavities of decay, and does it on the principle of that gold uniting by cohesion, and meets with a fair measure of success, can, with less labor and vexation, lengthen the abraded teeth to stop their destruction.

The principles on which such crowns are to be attached may require drawings, models, or actual clinics, to most clearly illustrate the minutiae of their workings; but it may not be out of place in such a paper to remark that like other valuable ends attained in contour work with cohesive gold, equally good results may be attained by different skillful hands with the use of a variety of modes of operating. One may with hand pressure condense the gold to make success—another with automatic mallet—another with electric mallet, or other good condenser, propelled by power outside of his personal motion or force; or the operator may find in one case that the hand mallet is the best suited to its peculiarities—while in another case, involving extensive condensation of gold, that the electric mallet facilitates his work and lightens his labor. The hand pressure advocate may go on in his old rut, from force of habit, not having learned or convinced himself that a better method is extant for much of his work—just as the old farmer took the round-about circuitous road to his home from town, years after a new road was cut, making him an hour nearer home—he was a penny wise only in not taking the newspaper (very little of his money went into dental publications)—he was a pound foolish in not visiting among his neighbors and getting the news (he did not waste a copper in going to any State Dental Society). All of us can look back and profit by the lessons of the past, seeing where we might have profited more by adopting many valuable aids and principles, of which we slowly comprehended the worth, or indifferently instructed ourselves in them. The present is but a continuation of the past, and the future will soon be present and quickly past. Let us reduce the ratio

of our regrets, as time unfolds its pages to our view, by remembering that no one of us has all the good things that are to be had, that might be valuable every day and hour in practice. So it is with the principle of retaining these gold crowns or caps in their positions on the teeth after the proper condensation of gold. Different methods prevail, and in exceptional cases a variety of means of retaining may be proper in a single mouth—but for a rule of practice there must be a best way to perform these operations, and on this ground the battle will be fought until the right has gained the victory and rules. There are but three distinct ways of producing the desired effect, and these used separately or in combination, in case of living pulp. First, screws inserted into tooth at safe distance from the enamel and pulp; second, a groove cut around the pulp, and as much inside enamel as best suited to the case; third, a number of retaining pits drilled just inside of enamel, and safely away from pulp, with some concavity in centre of crown, if possible, and a beveling of enamel margins from twenty to thirty degrees; pits from four to ten in number, as may be required, with counter-sinking and enlarging their bases to strengthen and retain the gold—pits as large as possible without encroaching too near enamel and pulp, and deep enough, according to their size, to retain gold properly—in these pits small pieces of gold should be very thoroughly impacted with a decided force and a small pointed plugger. This preparation of crowns I prefer to the groove system, as a blue line may appear in many cases around the gold from the continuous gold reflecting through, and the force of filling the groove with gold may crack or slab off the enamel of delicate teeth. The pit system requiring less time to prepare and less pain to the patient, as less tooth material is removed. A system of pits and screws combined would be preferable to the groove plan, but the pits alone in most cases will answer, if the dentist is not supplied with screws and skillful in their use. Fifteen crowns were, with pits alone, inserted by the writer, in a gentleman's mouth, on the deck of the steamer which took the bulk of American dentists to London last July—pulp alive—teeth lengthened about three-sixteenths of an inch—steel mallet and non-serrated pluggers—work done in steamer chair, six days to complete without dental engine to assist—rain and fog, sea air and sea-

sickness not interfering with success in any way—with five days of continuous use of cohesive gold foil, annealed in smoking cabin in rope form and cut up in covered box, being five books of gold or over 4,000 pieces, and not a single piece refused to cohere. For which a fee of \$300 was cheerfully paid, being an average of \$20 a crown, or for the six days' work \$50 a day. I will state here that, after careful deliberation, I have decided to break the ice in regard to charges, and make some statements of them in this paper, which I know to be an important part of dental education, and has been considered too sacred or mercenary a matter to mention out loud in meeting, but perfectly proper to whisper to each other. I would have given much for years past to have had for reference the printed statements of definite fees from dentists of celebrity, ability and financial success—not for my own information, but to use in discussing the fee question with patients—admitting that a variation of prices would be proper with equally good work, according to location or the peculiarities of the patient. Here is a dentist in the first ranks who takes his own medicine (and surely it must be good). Dr. J. W. Clowes, of New York, sat nine entire days, nearly two years ago, to have twenty-three crowns put on teeth with living pulps, and much abraded, who cheerfully draws his check for over \$400 for the service rendered. No pulp disturbed—all anchored with pits as just described. Less of this work is done than is supposed, even by eminent dentists in the city of New York. Over a year ago I completed a case for a gentleman in New York, for a fee of \$300, who had been begging to have it done, and in four good offices had not succeeded. One had agreed, but became faint-hearted the first tooth started with, and gave it up; another said he could do it, but would not recommend it, as it would not stand; another, that it could not be done; and the fourth would do it, and could have done it well, but did not, for some reason, get the patient to let him begin. I recently exhibited a case at the Clinic at White's Dépôt, in New York, where I succeeded in placing eight crowns, in this manner, on a gentleman's upper eight anterior teeth—entire work done in one day, or nine hours' work—teeth lengthened about one-eighth of an inch, roots all alive, some of them loose, which were braced with the universal screw-

clamp, so that the malleting would not be painful. This rapid work, I believe, could not have been done with anything but the electro-magnetic mallet—as previous to this, with hand mallet, and nearly fifteen years' practice of building with cohesive gold, I have never succeeded in crowning but four teeth in a single day. Pulpless teeth, especially in cases of lower incisors, may require gold wire pins, trimmed the form of the channel, almost to the apex, and barbed for retention when driven home, extending above the abraded surface, to retain filling and strengthen cap.

Some diamond pointed teeth that have been so well formed and densely constructed as to wear their antagonists without being worn, can in most cases remain uncapped, the restoration being all done on the abraded teeth occluded with them.

A dentist in New York ten years ago, whose teeth had about half worn to the gum, a complete set, and free from decay, but troubling him much by contact with acid food, had the entire set of teeth extracted.

As a result of examination of crania in many museums, I will give a few. In carefully examining the classified crania in the Catacombs at Paris, where eight million human skeletons are stored, and where for half a mile the skulls are walled up on either side, held in position by the long bones being piled up like kindling-wood, I found that abrasion of the teeth has been about as common with the Parisians for a thousand years past, as it is to-day—getting dates from stone tablets—but caries of the teeth not near so prevalent as now, it being difficult, among hundreds of skulls to find one maxilla where the teeth were gone at time of death. The limestone formation on which Paris is built prevents disintegration of the osseous remains buried there, and as the city incroached upon the ancient cemeteries, the abandoned stone quarries 50 or 100 feet below the surface have been used as storehouses for this valuable collection.

Also the examination of about 3,000 crania from every part of the globe in the Hunterian Museum, London, shows apparently that abrasion of the teeth is a world-wide complaint and the percentage about the same in the past as at present. Accounted for, I believe, by the nervous diseases of civilization doing at present, by the teeth being ground

together, what the coarser food of the ancients did in the process of mastication.

DISCUSSION.

ATKINSON, W. H.—There is an amount of intelligence in that paper that can not be obtained in searching in text books. That single paper has more of instruction than the entire curriculum of any college that confines itself to text-book learning. This is the result of actual observation, of experimentation and of an application of the laws of mechanics to the restoration of the teeth with the material chosen. There are gentlemen in this room who have operations in their mouths that show excellence of manipulative skill, and show also the folly of attempting to restore teeth in this manner with non-cohesive gold.

COOK, C. D.—I remember hearing of an operation, but not as Dr. Brown has detailed, and I would like to ask the gentleman if he has seen the case since it was performed, and what is its present condition?

BROWN, E. P.—I saw the patient six months after the work was done and everything was well. There is no trouble about this kind of work standing if thoroughly done. I have mouths full of it that were done ten, eleven and twelve years ago, that I see nearly every day; and I believe a gold tooth, as far as strength goes, better than any tooth born in a man's head, provided the work is done right.

ALLEN, W. H.—I am very much surprised that dentists of intelligence at this late day question the desirability of such work. I have done such work for more than twenty years, and reported cases at the meeting of the American Dental Association in Cleveland, in 1862, which were published with diagrams in the transactions of that Society then. Those cases stood until the men died. They were cases where the teeth had been some twelve or fifteen years abraded, and they were built up with gold by hand, and of course in that day without the rubber dam. The first case of importance was where there were twelve or fifteen teeth built up in that way. I think only two, after some year or two, gave out. They were rebuilt and stood until the man died. The first

cases of the kind which I did were done with screws, partly with screws and partly with pits, with hand mallet and without the rubber dam. It is comparatively a simple operation now. It is done by some men frequently—a common thing. I am much surprised to hear men question the advisability of it, and the standing qualities of the work. If it is done well, it will last as long as the tooth. Of course it requires judgment, as it does to fill teeth. I regard it as simpler and easier than filling ordinarily difficult cavities. It is tedious work and wearing to the dentist, and on that ground the dentist should be better paid. I had rather fill decayed teeth than cap abraded teeth, so far as fatigue to myself is concerned and remuneration. If you get larger prices, it don't pay as well as to fill decayed teeth, but you do take some pay in the satisfaction it affords you to put a man's teeth in order. I regard it as the very best operation that can be performed, and after more than twenty years' experience an operation I am only surprised that there was so little known about at that day and so few who practiced it.

COOK, C. D.—If the gentlemen's remarks were intended to refer to me, I want to place myself on record so as not to be misunderstood. I have practiced dentistry a few years, and have seen a few operations from the best practitioners in this country, and am somewhat familiar with the operations in the mouth. I didn't question the advisability. I did question the advisability of performing such operations on the deck of a steamer in mid-ocean under the conditions and circumstances the gentleman has detailed. I question the advisability of performing such operations under such circumstances, and I should like to know the future history of such operations, and that was the reason for asking the question. It was not at all to question the propriety of performing operations of that character. That all pulps are saved in teeth under such operations, or under such fillings, for a long term of years, I question. I think a great many pulps die under such circumstances. If we can fill teeth with cohesive gold on the water, it is a new revelation, and I think we must be gratified at the success of operations performed under such circumstances, and it is in regard to that particular point that I asked the question. It is not at all questioning the propriety of restoring the crowns of teeth or preventing

abrasion, which operation can be made to stand for years and years. That all operations will stand you can't expect.

I question the advisability of discussing fees in a scientific body. We are to discuss what can be done to save the teeth, and render to our patients such services as we have in our power to render, and leave the matter of fees to regulate itself in each individual practice. We are not in any sort of way placed upon the same plain in life professionally or otherwise, and the surrounding circumstances that one man is competent to take care of, his neighbor may be quite incompetent to put himself on terms with and adjust himself to; and I am sure that it is altogether unusual, and I don't remember to have heard it spoken of, that the question of fees for amputating a limb, plastic operations, etc., are discussed in medical societies in this or any other country. I don't find the books filled with accounts of the fees received. I do find they are somewhat filled with descriptions of operations, methods used, results of operations, and the advisability of performing them under certain circumstances.

ALLEN, W. H.—If my remarks may have seemed to refer to my friend from Brooklyn, I did not so intend it. I had in my mind the remarks I have heard from men at clinics when they say: "Well, that will do to look at, but see that tooth six months from now." I have heard such remarks. I don't prefer the sight of gold to good sound teeth. I would only make this exception when it is absolutely necessary.

HOYSRADT, G. W.—Are we not, as dentists, apt to condemn the material, while we forget to look for what is probably the real reason—carelessness or unwillingness to do the best that can be done mechanically. I consider the practical portion of dentistry entirely mechanical in the way of filling teeth. There is no discount on gold. There is no danger of gold giving away if it is properly put in and there is sufficient to retain it; but the great trouble has been, with even the best dentists, the unwillingness or inability to do that thing which is perfect. I was sorry I didn't hear the paper, but I have seen Dr. Brown operate, and I think he has the idea which, if practiced generally, would certainly help us and save many more teeth, and that is *delicate manipulation* around the margin of the cavities in

the teeth, so as not to undo what we have already done. It was stated last night that if a tooth was hermetically sealed, the wounded portion not entirely exposed, but the margins perfectly covered so that no leakage could occur and continue the decay—that that tooth was as good as though it had been entirely excavated and all of the decay taken out. If we look at this carefully we may find ourselves condemning the material when we should really condemn our operations.

ATKINSON, W. H.—The case spoken of is a gentleman who is a veterinary surgeon and horse dealer in New York, and of great ability. One of the greatest reasons that he didn't give attention to his case before was that the dentist could not get to him nor he to the dentist before he took passage on the Erin. As to the solidity of the work, so far as my observation has gone, I have observed with satisfaction the progress made, and he said in my presence: "I would pay for any one of those teeth cheerfully what I gave for the whole, rather than go back to where I was." My remark is especially to the young men, to whom my mission specially is, that I might wake them up to the excellence that is attainable by all who are fit to practice dentistry. I adhere to clinical instruction and I do it with good intention. I think it has done more to teach dentistry than all other means combined, bringing men to practice and principles at the same time. The difficulty is we are not sufficiently in earnest to get at the truth from whatever quarter. Catch it and hold fast wherever it comes from. If it comes from the dark pit, take it. Let us accept the little scintillations that come from the stars, and when we are so in earnest about getting the truth, we will forget personalities, go through the requisite ordeal, and be what we now have a right to claim, the tip-top blue blossom of excellence.

INCIDENTS OF OFFICE PRACTICE.

FIRST DAY—AFTERNOON SESSION.

BROWN, E. P.—Just to encourage the young men, I want to make a few remarks in regard to the principle that is often mentioned in medicine: "If you don't know what to do, don't do anything." I had a case where I found pain around and between the molars. I took out the nerve canal fillings, which were imperfect, and refused to fill the tooth, not knowing why I should.

I filled two molars in a young lady's mouth the other day, the nerves alive and not exposed. In a week she came in with badly swollen face. I thought I would be able to diagnose dead pulp. I tested in every way, but could not convince myself there was any. After searching carefully, and bringing the inflammation to an abscess and discharging, I discovered there was some dead bone, but why it died I don't know to this day. I found that the cause of all the trouble. I removed the bone and effected a good cure.

ATKINSON, W. H.—That brings to mind what was seen in the daughter of a member of our own profession, for whom it had been decided upon to extract a lower first molar. The child was a special pet of the Emperor of Brazil. Speyer was the father's name. There was a swelling on the lower jaw, and considerable pain and inflammation. She was brought to me, but I was not satisfied. As Dr. Brown says, I could not satisfy myself that the pulp was dead, and even if it had been dead it would not be an excuse on my part for extracting the tooth. I examined more thoroughly and finally made an opening, and it proved to be necrosis in the dense part of the bone—the base of the jaw; and he says he didn't know why, and I never found anybody who did. We have the first step, and we will set that down as settled. I opened into the bone

and peeled up the soft parts, but could not find a sequestrum. Suffice it to say, after a few weeks I became convinced there was one corner where the line of demarcation was set up. I took out six pieces of bone and the scar healed with very little show. I greatly commend the caution instanced by Dr. Brown. It is a custom that has not always been exercised in such cases. A demoniac custom is to destroy the six year molars, and it prevails so generally that it is an exception to see a man careful. He jumps at conclusions and twitches them out without knowing how it ought to be done. That was the case called to my mind by the remarks of Dr. Brown, and it is worth the time if it will save that kind of iconoclasm which, as the doctors used to say: "Dead men tell no tales!"

AMBLER, J. G.—A case exactly in point occurred yesterday, before I started for Albany. A lady came into my office for whom I had never operated, and wished me to extract the second molar on the lower jaw. I looked at it and said there was nothing the matter in the tooth. "Why should you have it out?" "It pains me at the least touch." I sounded it, probed it, and satisfied myself there was vitality there, no lack of vitality, and there could not be any dead pulp; and after probing for some time she insisting that the least touch gave her intense pain. I took a sharp excavator and pierced the gum where the wisdom tooth had been taken out about eighteen months ago. The gum looked healthy, but I touched something. It yielded to the point of the lancet and on going down she said—"that's the pain." I got a little deeper and took out from that space the remains of the wisdom tooth. This had remained there, the gum healing over; it was in close proximity to this molar, and the pressure upon the gum created the pain which she supposed was from the molar tooth. In order to satisfy myself more fully as to what caused the pain, I asked her to press her tongue as before against the tooth, which she did, but without causing pain.

FRANCIS, C. E.—I happen to have cases in my own practice. Last spring a gentleman called at the office, stating that there was pain in an inferior molar tooth. I made an examination and found it quite sound. Upon pressing it I noticed the tooth had been split through the center, and of course it moved a little and opened when he bit, and gave him pain. The pulp was alive, and the tooth in all respects

healthy except that fissure or crack. It was a very valuable tooth and I finally decided I would cap it. I cut away the grinding surface a little and took an impression of it. I had a gold crown made like a thimble to fit the tooth and that would extend to the margin of the gum and fit the neck. It was fitted, I might say, perfectly. After having properly arranged it I filled the crown with a thin coating of oxy-phosphate of zinc, forcing it down. This was nearly a year ago. The tooth has given no trouble since.

BROWN, E. P.—Will some gentleman describe how he treats a root that is split lengthwise where a pivot tooth has been worn. It matters not what kind of a pivot tooth, the description will answer.

ABBOTT, F.—I have had within a year exactly the thing the doctor speaks of. A patient who had worn a pivot tooth, for four or five years, I think, came to me to have some other work done. He was not aware that there was anything wrong about the pivot tooth, only it tipped forward a little. I tipped it back and it came out in my hand. I discovered that the root was split. The first thing I did was to pass silk around the root and tie it as tight as I could, forcing it above where I wanted to work; then I took a small burr and made it slightly conical in shape, and then carefully fitted a piece of platina, forming a ring. This ring I drove onto the root as far under the gum as I could without too much injury. I then reset the tooth as before. The case is doing well.

RHEIN, M. H.—I saw a case some time ago under the care of Dr. Wardlaw that will perhaps interest Dr. Brown. The root was not split, but the decay was so extensive that part of the root had a hole right through into the gum. At that point a quill was inserted to fill the root and the root was filled with gutta-percha. The crown used was a plate tooth backed with gold, covered with foil. That was fastened to gutta-percha in the usual manner. The root was not split but merely pierced through the center.

HILL, President.—Any ring around the outside?

RHEIN, M. H.—No, sir.

ATKINSON, W. H.—I think I reported this case before. It was in Gen. Buell's mouth, in war times. It was a split tooth crown, a complete fracture of the left superior first molar, so

as to leave the buccal roots with the outer half of crown and the palatal root with the inner half standing or loosely hanging in the socket. The transverse process was clearly in sight. I succeeded in making a satisfactory fixture for it by drilling directly through from buccal to lingual face; after bringing the parts together by binding with platina wire, I got it secured tightly and then drilled through and made a bolt with a head on the inside and a nut on the outside and screwed it to place and finished off, and then filled the root and pulp-chamber and made a successful operation. It so pleased him that he sent his wife. I think her case will throw some light on a subject that is very little understood in dentistry. She had the anterior buccal root of the corresponding molar to that in her husband's mouth without any soft or hard substance around it. It was making havoc with the membrane so as to simulate lupus. I found the posterior buccal root and palatine root were in good condition, and upon examination even the pulp was alive in the palatine root. I cut off the anterior buccal root, bevelling it upwards, and filled the root down into the pulp-chamber, and finished the filling, allowing the gum to grow over again. Dentists who see abscesses upon pulpless teeth are inclined to think extraction the only remedy, and when a true practice is presented to them they kick against it as if they had a right to find fault with what they don't understand. We will find a red line about the root where there is an abscess. Go through to the seat of troubles and you will learn to diagnose the case. When the end of the root is really dead, dress the fistula for one or two sittings with a light pellet of cotton, with creosote or creosote and oil of cloves, equal parts. When you get it well open take a bone burr and cut off that which is dead. It is no matter whether you wash it out or not; I used to be particular and wash out and dress, but I have given up that idea. Cut to sound tissue and keep the walls from forcing in, to prevent new formation, and you will get it. If you have understood what I said you have received more instruction than I had after twenty-five years of study.

HILL, President.—Dr. Abbott said he would show something that would be of interest to you. Perhaps it will not be out of place for me to exhibit a method of capping that Dr. Walker, of Brooklyn, employed in a case in my mouth.

My upper cuspids are worn down, or cupped out, to very near the nerve; so much so that a metal filling would be impracticable.

He first took an impression of the worn surface of the tooth, made metal dies and struck up gold caps that perfectly fitted the surfaces, and to the upper side of this cap soldered a gold spur. Then little under-cuts are made at convenient points in the grinding surface of the tooth, and sufficient phosphate of zinc placed in the cavity to perfectly fill it. Then the gold cap is placed in position and firmly held there till the phosphate of zinc hardens. The edge of the gold cap, which is made a trifle larger than the tooth, is then burnished down so as to grasp the outer or enamel surface of the tooth. The cap of this one was filled with gutta-percha. [President here showed his teeth.]

A voice—"Beware of the dog!"

SECOND DAY—MORNING SESSION.

ATKINSON, W. H.—Almost every week I have opportunities to see cases that require regulating. I have one case that I expect to put the keeper in on Monday next. A young lady some sixteen or seventeen years of age, with right superior canine fully developed and erupted outside of the line, and I have in the laboratory the piece for regulating it. From the absence of the piece I can't make myself understood, but the point that is useful for dentists is the principle involved in regulating teeth. Those teeth that are to be moved should never be attached to the piece during the time of the transition from the old to the new position. And Reese's base gives us opportunity for doing that as nothing else I have ever seen does. Take a bite and let enough distance be gained so that the mouth shall be thrown far enough open to admit the teeth to pass their antagonists without interfering. The way that is done is to have the thickness of the wax so as to allow part of the metal to flow over, constituting a base for the lower teeth to rest upon in chewing. A bar is used to attach elastics to bring the teeth into line. This is made of iridium and platina for stiffness and lightness. Let this bar extend a little beyond the point where you desire the teeth to be when

the operation is finished, so that when the mouth is closed the teeth will be a little bit out from where they were and allow them to recede to the position so to make a proper occlusion. Most patients are very desirous of getting rid of the fixture soon. A keeper made of half round platina wire, or platina plate made in a link, so that it will slip on and hold the teeth in the new position, is very efficient. Any of you who are in the city I will be pleased to show you the whole process and the facility with which it can be done. I am doing in from eight days to eight weeks what used to take me from eight months to three years to do, and I can show you the case of a gentleman who was desirous of getting married and only came to me sixteen days before he was to leave—where the cutting edges of the under front teeth were outside of the front upper teeth, forcing them back. Some of the upper bicuspid had been removed for some reason, but in just thirteen days this fixture moved these teeth in a person over thirty, more than the breadth of the entire body of the teeth, into a position so as to permit the impression to be taken and a plate to be put in the mouth; and he went on a wedding trip to Europe. That I have been able to accomplish. That is one of the applications of Reese's base. The other application is in the case of Dr. Swift. I was very busy and the doctor was to have brought my special series of impressions before operating, when operating and the case as made up, each one of the steps as it was used; and just when the time was up I grabbed my umbrella, and forgot, and left the fixtures, and didn't think of them until aboard the boat. There is an upper and under set of teeth that I will call upon Dr. Swift to make his statement about.

SWIFT, G. W.—I went to see Dr. Rees last fall and he showed me some cases and the working of it, which I was delighted with, and so I suggested he operate for me. This is the case, the first case after I went home. I went and made the impression. You will see how perfect the case can be made, how sharply every line is defined, and any one can look them over and see how they are made. They are worn with the greatest comfort in the mouth.

MISCELLANEOUS.

BARRETT, W. C.—At the meeting of the American Dental Society of Europe, held in Wiesbaden, Germany, Dr. W. D. Miller, of Berlin, read a paper upon the chemical theory of decay of the teeth, and I have been in correspondence with him ever since. He has written me at different times that he has held to the chemical theory of decay, but that he should be compelled to revise his statement. I received a late letter with which he sends slides in which the dental tubuli are depicted. They present a wonderful appearance. He showed me another tooth with a fungus growth at the boundary of sound tissue; diagonally across the enamel rods and dental tubuli, half way to the pulp, a fungus has bored its way. These *spaltz-pilz* have absolutely penetrated through the enamel a considerable distance in the dentine. I believe this to be entirely new.

COOK, C. D.—This would seem like an investigation which has been made during the last two years, in London, by Underwood and Milles. A paper was read before the International Medical Congress in which they took the ground, if I remember rightly, that micro-organisms are invariably present; but so far as my observations have gone it would point to inflammatory as against chemical action as the cause of decay in the teeth. I think the paper has been published in the American journals in connection with Dr. Miller's. It might be introduced in the investigation in this direction as being the opposite of the chemical theory of decay, which the editor of the *Ohio State Journal of Dental Science* says was so positively established practically that fools should know it, he having announced it so many years ago; and having been announced, there seems to be no possibility that it was a false announcement. But it seems that many questions arise, and this appears to be one of them. In the matter of Underwood and Milles, they had not completed the work which they reported upon at that meeting, but were continuing it; and it went on to say further that the investigations which had been made by Lieber and Rottenstein would likely be subjected to revision somewhat. The paper was entirely new, and came under the head of new observations and investigations in regard to carious teeth.

TRANSACTIONS
OF THE
Dental Society

OF THE
STATE OF NEW YORK.

FIFTEENTH ANNUAL MEETING.

MAY 9 AND 10, 1883.



COMMITTEE OF PUBLICATION.

J. EDW. LINE,

F. FRENCH,

C. BARNES.

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1883.

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<i>Arrangements</i> —W. F. Winne, E. C. Baxter, Albany ; H. A. Hall, Troy.
<i>Publication</i> —J. Edw. Line, F. French, Rochester ; C. Barnes, Syracuse.
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<i>Dental Practice</i> —S. G. Perry, C. E. Francis, W. A. Bronson, New York.
<i>Transactions</i> —O. E. Hill, C. A. Marvin, Wm. Jarvie, jr., Brooklyn.
<i>Diagram of Incisor Tooth (Special)</i> —Frank Abbott, C. E. Francis, S. G. Perry, New York.

*Vice W. H. Allen, New York, deceased.

TRANSACTIONS
OF THE
DENTAL SOCIETY
OF THE
STATE OF NEW YORK.

FIFTEENTH ANNUAL MEETING

FIRST DAY—MORNING SESSION.

GEOLOGICAL HALL, {
ALBANY, May 9, 1883. }

THE Dental Society of the State of New York began its Fifteenth Annual Meeting, Wednesday morning, date and place as above, and was called to order at 10 o'clock by the President, L. S. Straw.

After prayer by the Rev. Dr. Nichols, the roll was called by the Secretary, the following members responding: J. Allen, J. G. Ambler, W. H. Atkinson, Wm. Carr, C. E. Francis, N. W. Kingsley, C. F. W. Bödecker, F. Abbott, C. Miller, New York; A. H. Brockway, C. D. Cook, O. E. Hill, Wm. Jarvie, jr., H. G. Mirick, M. E. Elmendorf, C. W. Harreys, E. H. Dickey, Brooklyn; L. S. Straw, Newburgh; J. H. Holly, Norwich; E. C. Baxter, W. F. Winne, F. L. Ames, Albany; A. Colton, C. K. Van Vleck, Hudson; S. D. French, H. A. Hall, Troy; W. H. Colgrove, Johnstown; G. E. Lamb, Port Henry; C. Barnes, S. B. Palmer, F. D. Nellis, Syracuse; A. N. Priest, E. L. Swartwout, Utica; A. M. Holmes, Morrisville; S. W. Hoysradt, Ithaca; C. E. Ingalls, Cortland; F. French, Roch-

ester; G. W. Tripp, Auburn; A. P. Southwick, W. C. Barrett, Buffalo.*

The minutes of the fourteenth annual meeting ('82) were read by the Secretary and approved by the Society.

The report of the Committee of Arrangements was presented by W. F. Winne and adopted by the Society.

Following is the report :

The Committee of Arrangements would respectfully report that it procured Geological Hall for the meeting of the Board of Censors on the 8th, and for the meetings of this Society on the 9th and 10th.

It has also made arrangements for the exhibition of dental appliances, etc., at the Dental Depot of Wm. G. Carr, No. 20 North Pearl street.

The Committee would state that the S. S. White Dental Manufacturing Company has a large exhibit of the latest novelties at the Delevan House. The Colton water motor may be seen in an adjoining room in this building.

The Committee has also examined the following credentials and found them correct, and would recommend that those named be admitted as members :

First District—James E. Dexter, New York, four years.

Second District—T. W. Dubois, Pokeepsie, four years.

Third District—H. A. Hall, Troy, four years; F. Schermerhorn, Utica, four years.

Fourth District—C. F. Rich, A. C. Rich (time not stated).

Fifth District—E. L. Swartwout, Utica, four years; C. C. Smith, Syracuse, three years (vice J. S. Marshall); B. T. Mason, Syracuse, four years.

Sixth District—G. W. Hoysradt, Ithaca, four years; C. E. Ingalls, Cortland, four years; F. B. Darby, Elmira, four years (from May, '82).

Seventh District—R. N. Hudson, Auburn, four years.

Eighth District—C. S. Butler, Buffalo, four years.

[Signed] WM. F. WINNE,
H. A. HALL,
Committee.

O. E. Hill, of Brooklyn, nominated Charles Miller, of New York, as a permanent member. The motion was seconded by N. W. Kingsley, of New York, and on ballot, J. H. Harreys and J. J. Pitts acting as tellers, he was declared unanimously elected.

W. F. Winne, of Albany, nominated F. L. Ames, of Albany, as a permanent member. On ballot he was declared unanimously elected.

President Straw then delivered the Annual Address.

On motion of J. G. Ambler, it was ordered that so much

*And many late arrivals who neglected to report themselves to the Secretary.

of the President's address as referred to William H. Allen be referred to a committee of three, to be appointed by the Chair, said committee to report before the close of the meeting.

The President appointed as such committee, J. G. Ambler, Frank Abbott and S. B. Palmer.

On motion of J. G. Ambler, seconded by J. J. Pitts, it was ordered that so much of the President's address as referred to a change in the time of the annual meeting be referred to a committee of three.

The President appointed as such committee, J. G. Ambler, C. E. Francis and S. D. French.

M. H. Rhein, of New York, announced the death of Marshall H. Webb, an honorary member of the Society, and moved that a committee of three be appointed to suggest suitable action. The motion was adopted.

The President appointed as such committee, the members to whom had been referred the death of W. H. Allen.

On motion of N. W. Kingsley, seconded by J. H. Race, the privileges of the floor were extended to all visiting dentists.

The Treasurer, A. H. Brockway, presented his annual report :

The Treasurer begs leave to submit the following as his annual report of the financial condition of the Society :

1882.	
May 10—Balance on hand as per last report ('82).....	\$671 77
June 10—Whitney Prize Fund.....	35 00
1883.	
May 8—Dues and admission fees.....	363 00
Diploma fees.....	30 00
	<hr/>
Making a total of.....	\$1,149 77
Expenditures, as per vouchers.....	200 61
	<hr/>
Leaving in hand a balance of.....	\$949 16

A. H. BROCKWAY,

Treasurer.

Albany, May 9th, 1883.

On motion of J. G. Ambler, the report was referred to the Committee of By-Laws.

The report of the Correspondent was called for, whereupon W. H. Atkinson stated :

I have no report, as nothing has occurred during the year worth taking note of.

The Secretary, J. Edw. Line, read his annual report.

The report recited the leading features of certain correspondence between the present incumbent and the former Secretary, and acknowledged the receipt of books, papers, and other property belonging to the Society.

The report further stated :

The work of this office for the year may be summed up as follows : Correspondence has been attended to more or less carefully and promptly ; committees have been notified (each committeeman three times) by postal-cards, the backs of which contained a full list of the committees and names of their members ; Censor and Society circulars have been printed and mailed, the former to all dentists in this State, the latter to the dental journals and members and friends of the Society ; written notices of the meeting of the Board of Censors and Society have been sent to seven dental journals, several of which are probably even now considering the question of giving them a place in their next issue ; all bills have been paid ; and finally, all duties have been discharged in a manner quite consistent with circumstances at once unsatisfactory and extremely annoying.

All of which is respectfully submitted.

J. EDW. LINE,
Secretary.

After a brief discussion, the report was received and placed on file.

The report of the Board of Censors was presented by F. French, Secretary. Following is the report :

The Board of Censors of the Dental Society of the State of New York would report, that a meeting for the examination of candidates was held in Geological Hall, Albany, Tuesday, May 8th, 1883, at 10 o'clock A. M., and continued throughout the day.

Censors present—Kingsley, Jarvie, jr., French (S. D.), Colgrove, Holmes, Palmer, French (F.), Southwick.

Nine candidates presented themselves for examination, of whom the Board recommends the following for the degree of M. D. S. :

J. Howard Reed, D. D. S., 121 West Sixteenth street, New York.

John E. Taggart, Westport, N. Y.

W. Carlos Hayes, Buffalo, N. Y.

A meeting was held at the Delevan House in the evening, at which it was thought best to recommend the discontinuance in the future of the Censors' circular, which has been issued yearly at an expense of thirty to forty dollars, and that attention be called to the meetings hereafter through the medium of the journals and the regular call of the Society.

Censor Kingsley, who, by request of the Board, was a delegate to the

National Meeting of State Examiners, at Lexington, Ky., in February last, gave a detailed account of the proceedings of that meeting, the efforts of whose members promise an advance in the standard of State examinations throughout the United States.

Two censors are to be elected for the term of four years, in place of W. H. Colgrove and Frank French, whose terms expire with this meeting.

FRANK FRENCH,
Secretary.

On motion of Wm. Jarvie, jr., the report was accepted, and it was ordered that the degree of M. D. S. be conferred on the three gentlemen mentioned in the report.

The report of the Committee of By-Laws was called for, but the Chairman, J. J. Pitts, stated that the Committee had no report.

The following report of the Committee of Ethics was presented:

The Committee of Ethics would respectfully report that it is not cognizant of any violation of the "Code of Ethics" by any member or members, of this, or of the district societies.

[Signed] WILLIAM CARR,
CHAS. K. VAN VLECK,
Committee.

H. G. Mirick presented the following report of the Committee of Business, which, on motion of C. D. Cook, was adopted:

Your Committee of Business would respectfully report, that it has engaged the services of Mr. C. K. Urquhart, as stenographer, at an expense of \$55.00, Mr. Urquhart agreeing to have his report written out and sent to the Secretary within three weeks from the time of adjournment.

A supplementary report will be presented at the close of each session, giving the programme for the session following.

[Signed] H. G. MIRICK,
A. N. CHAPMAN,
M. E. ELMENDORF,
Committee.

F. Abbott, from the Special Committee on "Diagram of an Incisor Tooth," presented the following:

The Committee appointed at the last annual meeting of this Society, for the purpose of having the "Diagram of an Incisor Tooth" published in a convenient size for study, would respectfully report, that the work has been done, and the published plates are now for sale at nearly every dental depot in this

country, and by the Chairman of the Committee, Frank Abbott, 22 West Fortieth street, New York.

[Signed] FRANK ABBOTT,
CHAS. E. FRANCIS,

New York, May 8th, 1883.

Committee.

N. W. Kingsley moved that the report be accepted and the Committee discharged, with thanks.

O. E. Hill moved, as an amendment, that the Committee be continued for another year.

The amendment and the motion as amended were adopted.

The report of the Committee of Publication was presented by the Chairman, J. Edw. Line. On motion of O. E. Hill, it was accepted and placed on file. Following is the report, with several unimportant omissions :

First—As to the transactions for '82 : The fully written out report came in three installments—the morning and afternoon sessions of May 10th, July 25 ; the evening session of the same day, Sept. 19 ; and the morning session of May 11th, Oct. 24th. The lateness of the arrival of the several installments (excepting possibly the first) precluded the possibility of early publication in any form. But the greater reason for withholding them from publication, for a time at least, was the incompleteness of the report. In view of this condition of things it was deemed advisable, before passing the papers and discussions over to the S. S. White Dental Manufacturing Company, as directed by the Society a year ago, and also before attempting to put them with the minutes in book form for our own use, to see the reporter, or the several speakers, or all, and obtain, if possible, from their notes and recollections respectively, sufficient to enable the Committee to substitute what was spoken as sense for what appears in the report as no sense—or worse still, nonsense. An attempt will be made during this meeting, and without interfering with other business, to straighten this matter out.

The Committee would suggest that the Society insist upon : 1st, a complete short-hand report ; 2d, a complete long-hand or written out report ; 3d, the mailing of this latter to the Committee forthwith. In this way errors, which are unavoidable to some extent, may be detected and corrected before the subject-matter passes out of mind. And to this end it may be advisable to revive the resolution of '81—"Resolved, That the stenographer be not paid for his services until the acknowledgment of the receipt by the Secretary of a satisfactory report,"—which is substantially the same resolution offered by the Publication Committee of '77, and tabled—for what reason does not appear.

Second—As to the transactions for '79, '80, '81 : [Late advices from S. A. Freeman, of Buffalo, Chairman of the Committee of Publication for the years in question, state that the work is in progress.

Third—As to the proceedings of '82 and '83 : The former may go to press as soon as the errors alluded to have been weeded out ; and the latter almost, or quite as soon.

[Signed] J. EDW. LINE,
FRANK FRENCH,
CHARLES BARNES,
Committee.

The Secretary read reports from the First, Second, Third, Fourth, Fifth, Sixth, Seventh and Eighth District Societies, and on motion of J. E. Dexter, the reports were accepted and placed on file.

REPORTS OF DISTRICT SOCIETIES.

FIRST DISTRICT.

The last annual meeting of the First District Dental Society was held May 1st, 1883, in the city of New York. There were over forty active members present, besides many visitors. The election of officers resulted as follows:

President, A. L. Northrop, 44 West Forty-sixth street; Vice-President, Frank Abbott, 22 West Fortieth street; Secretary, James E. Dexter, 8 East Thirty-fourth street; Treasurer, Chas. Miller, 331 Madison avenue; Librarian, J. F. P. Hodson, 19 West Thirty-ninth street; Board of Censors, A. L. Northrop, 44 West Forty-sixth street; C. A. Woodward, 38 East Thirty-fourth street; W. A. Bronson, 8 East Thirty-fourth street; Frank Abbott, 22 West Fortieth street; E. A. Bogne, 29 East Twentieth street; Executive Committee, J. E. Dexter, 8 East Thirty-fourth street; J. F. P. Hodson, 19 West Thirty-ninth street; C. A. Woodward, 38 East Thirty-fourth street; Clinic Committee, C. F. W. Bödecker, 60 East Fifty-eighth street; F. H. Lee, 23 Perry street; W. W. Walker, 67 West Ninth street.

Delegates to the Dental Society of the State of New York: James E. Dexter, 8 East Thirty-fourth street, vice Chas. Miller, term expired; J. F. P. Hodson, 19 West Thirty-ninth street, vice K. C. Gibson, term expired.

The Society had on its roll-book, at the date of the annual meeting (May 1, 1883), the names of ninety (90) active members in good standing. This is an increase of seventeen (17) over the number named at the annual meeting of 1882. The membership is steadily and rapidly increasing.

It (the Society) has held nine (9) regular meetings and nine (9) clinics during the past year, at monthly intervals (except in the summer). At these have been presented six (6) original papers, and four (4) clinical lectures, on subjects connected with dentistry, besides discussion of questions and clinical exhibition of dental operations and apparatus. This material has all been, or is now being, published in the *Dental Cosmos*, and has (with the exception of one lecture) been furnished entirely by the active membership of the Society.

The financial condition of the Society is excellent; and its general condition as a working Society not to be surpassed by any similar organization.

JAMES E. DEXTER,
Secretary.

SECOND DISTRICT.

I have the honor to report that the annual meeting of the Second District Dental Society was held in the city of Brooklyn, Tuesday, March 6th, 1883, when the following officers and delegates to State Society were elected:

President, E. H. Dickey; Vice-President, W. A. Campbell; Recording Secretary, John J. Pitts, Corresponding Secretary, F. C. Walker; Treasurer,

E. G. Wilder ; Librarian, F. W. Dolbeare ; Censors, Wm. Jarvie, jr., A. H. Brockway, E. Parmly Brown, H. G. Mirick, O. E. Hill.

Delegates to State Society : T. W. Dubois, in place of T. W. Dubois ; W. A. Campbell, in place of J. H. Race.

The number of members is 48. Four (4) meetings are held yearly.

Respectfully submitted.

JOHN J. PITTS,
Recording Secretary.

THIRD DISTRICT.

The Third District Dental Society begs leave to make the following report :
Number of dentists in district, 140 ; members, 28 ; present at last annual meeting, 9.

Officers elected for ensuing year :

President, S. A. Walch ; Vice-President, C. F. Wheeler ; Secretary, A. M. Wright ; Treasurer, S. D. French ; Board of Censors, E. C. Baxter, C. H. Davis and C. K. Van Vleck.

A. M. WRIGHT,
Secretary.

FOURTH DISTRICT.

Our annual meeting was held August, 1882, at Saratoga Springs, continuing in session two days. There were present about twenty members, to which we made an addition of six new members. Much interest was manifested and new life and vigor was rejoiced in by all present, which was an incentive for all to try and improve our Society gatherings as each year should bring us together again. Financially our Society is in better condition than ever before, and we are in hopes of being able to hereafter keep up our dues to the State Society and become a worthy son of our mother. The officers elected for the ensuing year are as follows :

President, W. H. Colgrove, Johnstown ; Vice-President, G. E. Lamb, Port Henry ; Secretary, A. C. Rich, Saratoga Springs ; Treasurer, J. P. Niles, Ballston Spa ; Censors, W. H. Colgrove, Johnstown ; A. C. Rich, Saratoga Springs ; F. E. Taylor, Malone ; J. P. Niles, Ballston Spa ; G. T. Hawley, Waterford.

A mechanical clinic was held the second day, and one candidate for recommendation to State Board of Censors was examined and rejected. One has since been examined and passed. The Society adjourned to meet in Saratoga Springs the second Tuesday, 1883.

A. C. RICH,
Secretary.

FIFTH DISTRICT.

The following is the report of the Fifth District Dental Society :

Members, 37 ; registered dentists, 209. Officers : President, G. V. N. Relyea, Oswego ; Vice-President, C. E. Cherry, Syracuse ; Recording Secretary, G. L. Curtis, Syracuse ; Correspondent, A. B. Cowles, Rome ; Treasurer, J. C. House, Lowville ; Librarian, A. N. Priest, Utica ; Censors, S. B. Palmer, Chas. Barnes, Syracuse ; E. L. Swartwout, Utica.

Delegates to State Society : G. V. N. Relye, Oswego, and Geo. F. Horsey,

Utica ('80); C. H. Bennett, Waterville, and J. C. House, Lowville ('81); C. C. Smith, Ilion, and I. C. Curtis, Fulton ('82); T. B. Mason, Phoenix, and E. L. Swartwout, Utica ('83).

G. L. CURTIS,
Secretary.

SIXTH DISTRICT.

I have the honor to submit the following report :

The fourteenth annual meeting of the Sixth District Dental Society was held in the city of Binghamton, Tuesday, May 1st, 1883. On calling the roll, fifteen active members, and one honorary, answered. Four new names were added to the list of membership.

During the session appropriate resolutions were passed in relation to the deaths of H. Hodge and S. H. McCall, who were both charter members of this Society, and always active in endeavors to promote its interests.

The following is the list of officers elected :

President, M. D. Jewell, Richfield Springs; Vice-President, C. E. Dunton, Cazenovia; Recording and Corresponding Secretary, E. D. Downs, Owego; Treasurer, Frank B. Darby, Elmira; Censors, full term, Frank B. Darby, Elmira; to fill vacancy caused by death of H. Hodge, A. M. Holmes, Morrisville.

Delegates to State Society: G. W. Hoysradt, Ithaca; C. E. Ingalls, Courtland; Chas. W. McCall, Binghamton, vice H. Hodge, deceased.

All of which is respectfully submitted.

E. D. DOWNS,
Secretary.

SEVENTH DISTRICT.

I herewith submit my annual report of the condition of this Society :

Annual meeting held in Rochester, April 24th, 1883 (two days' session), 25 being present. Officers elected as follows :

President, F. E. Howard, Geneseo; Vice-President, A. Osgood, Bath; Recording Secretary, J. S. Walter, Rochester; Corresponding Secretary, C. T. Howard, Rochester; Treasurer, J. Requa, Rochester; Censors, J. D. Maynard, J. Edw. Line, G. W. Tripp, H. C. Knickerbocker, J. S. Walter.

Delegates to State Society: J. Edw. Line, J. S. Walter, M. H. Smith, F. D. Brown, R. N. Hudson, H. C. Knickerbocker, A. P. Burkhart, P. L. Stoddard.

Semi-annual meeting was held October 31st, 1882.

Number of members in good standing, 45. Eight (8) new members admitted since last report. Balance in treasury, \$130. Meetings very interesting.

Respectfully submitted.

J. S. WALTER,
Recording Secretary.

EIGHTH DISTRICT.

I herewith submit the fifteenth annual report of the Eighth District Dental Society, which is as follows :

The annual meeting of this Society is held in the city of Buffalo on the third Tuesday in April of each year. The semi-annual meeting on the last Tuesday in October, alternately in Rochester and Buffalo.

There has been but one meeting of this Society during the past year, namely, the annual meeting held on the 17th and 18th inst. (April). There were present at this meeting 21 members and seven (7) visitors. The officers elected for the ensuing year are as follows :

President, S. A. Freeman, Buffalo ; Vice-President, W. A. Barrows, Buffalo ; Recording Secretary, C. S. Butler, Buffalo ; Corresponding Secretary, B. Rathbun, Dunkirk ; Treasurer, C. W. Stainton, Buffalo ; Librarian, M. B. Straight, Buffalo ; Censor for four years, L. F. Harvey, re-elected.

Delegates to the Dental Society of the State of New York : G. B. Snow, Buffalo, to succeed himself, and W. C. Gardiner, Batavia, to succeed M. H. Dailey.

The active membership of this Society is the same as at the date of my last annual report, namely, 41. A. S. Cheesman, of Joliet, Ill., was expelled for non-payment of dues, and C. J. Ellis, of Cattaraugus, was admitted to membership.

I have no deaths to record among our active members during the year, but two of our honorary members, Drs. Hodge and McCall, of Binghamton, have been stricken down.

The number of practicing dentists in this district, as near as I am able to ascertain, is about as follows : Alleghany county, 26 ; Cattaraugus county, 28 ; Chautauqua county, 34 ; Erie county 71 ; Genesee county, 19 ; Niagara county, 31 ; Orleans county, 17 ; Wyoming county, 17.

Changes are going on all the time. Dentists leave the district, others come in, and in two or three instances men are practicing in open violation of the law. The Society is in a sound condition financially, and there was a greater interest manifested at the meeting this year than formerly, noticeably in the direction of mechanical dentistry.

Respectfully submitted,

C. S. BUTLER,
Secretary.

The report of the New York College of Dentistry was read by the Secretary, and on motion of J. G. Ambler, was accepted and placed on file :

The following report of the New York College of Dentistry for the year ending April 1st, 1883, is respectfully submitted :

Number of students in the infirmary during the summer of 1882, 46 ; number of matriculates during the year, 138 ; number of graduates at last annual commencement, 31.

The College, as will be seen from the above, is in a very prosperous condition.

FRANK ABBOTT,
Dean.

The Secretary read a letter from A. M. Holmes, withdrawing the special prize of \$40 for "Improvements in Dental Practice."

The following bills were read by the Secretary, and on motion referred to the Committee of Business : J. McCloskey, removing blackboard, \$1 ; Janitor, room and services, \$15 ; J. Edw. Line, \$68.32.

The Secretary was empowered to have the Society cut corrected and electrotyped.

After a discussion of certain questions of dental law (qualifications of candidates for membership in district societies, etc.,) it was ordered, on motion of N. W. Kingsley, that the whole subject of dental law be referred to a special committee of three, said committee to report a codification of the laws at the next meeting. The motion was carried.

The President appointed as such committee, N. W. Kingsley, J. E. Dexter and Frank Abbott, of New York.

On motion of J. E. Dexter, the Committee on "Diagram of an Incisor Tooth" was instructed "to go on as they have done with regard to the picture and make a final report next year."

A. P. Southwick made a verbal report in behalf of the Committee of Dental Law, the full text of which may be found in the Records.

After a brief discussion, and on motion of J. J. Pitts, the report was accepted.

Following is the report of the Committee of Business:

The Committee of Business reported the following order for the afternoon session:

- 3:30 o'clock—Call to order and read minutes of the morning session.
- 3:45 " —Incidents of Office Practice.
- 4:15 " —Confer Degrees.
- 4:30 " —Essay by A. P. Southwick, of Buffalo, on "Cleft Palate," followed by discussion.
- 5:15 " —Essay by S. B. Palmer, of Syracuse, on "Professional Attainments and Popular Needs," followed by discussion.
- 5:45 " —Lecture by Prof. Wm. Hailes, jr., of the Albany Medical College, on "Microscopical Demonstrations of Kock's *Bacillus Tuberculosis*," and other interesting objects, till adjournment.

[Signed] H. G. MIRICK,
M. E. ELMENDORF,
Committee.

Adjourned to 3:30 P. M.

FIRST DAY—AFTERNOON SESSION.

GEOLOGICAL HALL, }
ALBANY, May 9, 1883. }

The Society was called to order by the President, L. S. Straw.

The reading of the minutes of the morning session was dispensed with.

“Incidents of Office Practice” were related and discussed by W. H. Atkinson, F. Abbott, Wm. Carr, C. E. Francis, A. N. Chapman and J. G. Ambler.

The President conferred the Degree of Master of Dental Surgery upon the candidates recommended by the Board of Censors, addressing them as follows:

GENTLEMEN:—The examination which you have just successfully passed at the hands of our Board of Censors, fully justifies them in sending you forward as men entitled to the degree of “M. D. S.”; and knowing the ordeal to which you have been subjected in answering the many questions propounded to you, it gives me more than passing pleasure to stand before you as the President of this Society, and in my official capacity pronounce you Masters of Dental Surgery. I present you this diploma, which I presume you will frame and hang in a most conspicuous place. I trust this degree will be to you a daily monitor, guiding and encouraging you throughout a career of marked usefulness—helping you to maintain that high vantage ground upon which I feel assured you have to-day planted yourselves. I have no doubt that in preparing for the events of yesterday, you many times felt doubtful as to your proficiency, and at times questioned your ability to secure these grand results. If so, I must congratulate you on having demonstrated to yourselves and friends that whatever is desirable and worthy of accomplishment comes within the scope of your zeal and ability. The most formidable obstacles to an honorable success in life vanish before the onward march of him who works intelligently and with a will.

The active dentist takes no second rank in the exercise of the most vigorous mental and executive capabilities, and to him who performs his task well the reward will surely come. In every department of life the true man lives as well for the benefit of his fellows as for himself, and no one ever advanced in knowledge or morals by excluding himself from the fellowship of his neighbors. We are dependent beings; it is therefore necessary that we help each other, for by so doing we elevate ourselves and in just the proportion that we lend a helping hand to those around us.

In order that we may acquire the greatest good for ourselves and the profession we have espoused, it seems—indeed is—absolutely essential that we enjoy the benefits of associated talent, and feel the influence of a liberal and earnest consideration of the various topics which should claim the attention of the dentist. To this end I should fail to perform an imperative duty did I not counsel and

earnestly beseech you to enroll yourselves and continue active participants in the work of the district societies where you belong. Much may be acquired by reading, much by careful observation of what comes under the eye and hand of each of us, and those who silently cultivate science have a high claim to our respect; but that these solitary studies may be available for practical purposes their results must be imparted to others. This can be done by the press, but if first presented to living, talking men, assembled for the purpose of hearing and comparing notes, impressions will be made, thought excited, errors corrected, and truths confirmed by the action of different minds. The debates upon these questions and upon diverse theories will do much to awaken a spirit of inquiry. The very excitement of coming together, sharpening wit, quickening mind, and stimulating activity, will be of great use, especially to those who are in the beginning of their career. The drudgery of a full dental practice seems sometimes to preclude the possibility of much study and a high degree of mental culture, but we have in our ranks many who stand shoulder to shoulder with men of science; and although the majority may not be able to devote the half, yet they can spare a portion of their time in the acquirement of knowledge needed in the discharge of duties devolving upon them as specialists in the great field of medicine and surgery. The better portion of our profession is always ready to manifest a kind and generous feeling towards those who are coming forward, soon to stand in the places of those who have borne the "heat and burden of the day." May you always be found working with the good and honest, ever ready to assist in pushing on the car of progress, and an exalted position among men will be your inalienable right.

The Committee on Business reported the following order for the evening session :

- 8:00 o'clock—Call to order and read minutes of previous meeting.
8:15 " —Paper by C. E. Francis, of New York, on "Longitudinal Grooves in Teeth."
8:30 " —Paper by J. Edw. Line, of Rochester, "On Certain Microscopic Elements in Pulpless and Gum-denuded Teeth, in their Relations to the Filling of the Roots and the Re-attachment of the Gum-tissue."
9:00 " —Lecture by Frank Abbott, of New York, on "Disease of the Antrum."
10:00 " —Miscellaneous and unfinished business and report of the Business Committee. Adjournment.

[Signed] H. G. MIRICK,
M. E. ELMENDORF,
Committee.

Adjourned to 8 P. M.

FIRST DAY—EVENING SESSION.

GEOLOGICAL HALL, }
ALBANY, May 9, 1883. }

The Society was called to order by President, L. S. Straw, and the minutes read by the stenographer and approved by the Society.

C. E. Francis read a paper on Longitudinal Grooves in Teeth. The discussion which followed was participated in by C. D. Cook, C. F. W. Bödecker, F. S. Ames, W. H. Atkinson, J. Lewis and the essayist.

The next paper was "On Certain Microscopic Elements in Pulpless and Gum-denuded Teeth, in their Relations to the Filling of Roots and the Re-attachment of the Gum-tissue," by J. Edw. Line. It was discussed by C. F. W. Bödecker, M. E. Elmendorf, J. B. Rich, F. Abbott and W. H. Atkinson.

Frank Abbott then delivered a lecture on "Disease of the Antrum."

The Committee of By-Laws, through its Chairman, J. J. Pitts, presented the following report and recommendation:

The Committee of By-Laws has examined the books and vouchers of the Treasurer, and hereby report them correct.

The Committee would most respectfully recommend that the Treasurer deposit all surplus money in his hands in a savings bank.

We have examined the following bills, found them correct, and recommend their payment:

J. Edw. Line.....	\$68 32
For room, etc.....	15 00
J. McCloskey.....	1 00
	<hr/>
	\$84 32

[Signed] J. J. PITTS,
Committee.

On motion of J. E. Dexter, the report was accepted and ordered placed on file.

On motion of H. G. Mirick, the report, with the recommendation of the Committee, was adopted.

On motion of J. E. Dexter, a committee of three was appointed to nominate permanent members. The following were appointed as such committee: O. E. Hill, A. P. Southwick, J. E. Dexter.

The resignation of W. St. George Elliott was accepted on motion of A. H. Brockway, the same to date from the session of 1880.

On motion of A. H. Brockway, the resignation of O. A. Jarvis, of New York, was accepted.

The Committee of Business reported the following order for Thursday, May 10th :

- 9:00 o'clock—Call to order and read minutes of previous meeting.
9:15 “ —Incidents of Office Practice.
9:45 “ —Paper by W. H. Atkinson, of New York, on “ Disease.”
10:30 “ —The subject of “ Artificial Crowns ” will be introduced by N. W. Kingsley, of New York, and W. Storer How, of Philadelphia, followed by discussion of the subject.
11:30 “ —Miscellaneous and unfinished business.
12:00 “ —Election of officers, appointment of committees, reading minutes, and adjournment.

[Signed] H. G. MIRICK,
M. E. ELMENDORF,
Committee.

At 10 o'clock the Society, pursuant to the report of the Committee of Business, adjourned.

SECOND DAY—MORNING SESSION.

GEOLOGICAL HALL, }
ALBANY, May 10, 1883. }

The Society was called to order by the President, L. S. Straw.

The following named gentlemen related and discussed “ Incidents of Office Practice ”: C. F. W. Bödecker and W. H. Atkinson.

A paper on “ Disease ” was read by its author, W. H. Atkinson.

N. W. Kingsley addressed the Society on the subject of “ Artificial Crowns.” Questions were asked by W. C. Barrett, C. E. Francis, and others.

W. Storer How followed with a brief address on the same subject.

The discussion which followed was participated in by R. N. Hudson, C. Miller, C. E. Francis, Wm. Carr, F. Abbott, W. C. Barrett, W. B. Hurd, A. N. Priest.

The report of the Committee of Prize Essays was presented by J. G. Ambler, and on motion of O. E. Hill, adopted.

Following is the report :

The Committee of Prize Essays would respectfully report, that but one paper or essay was presented, which paper has been carefully read by your Committee, and its contents as well digested as the material and circumstances would permit. And on the ground of precedent, established by this Society, we recommend that the prize be awarded to the writer of the essay [N. W. Kingsley].

[Signed] J. G. AMBLER,
S. B. PALMER,
FRANK ABBOTT,
Committee.

J. G. Ambler presented the report of the Committee on that portion of the President's address referring to the change of time of the annual meeting, and which, on motion of A. N. Priest, was received and placed on file :

The Committee appointed to consider that portion of the President's address referring to the change of the time of the Annual Meeting of this Society, would respectfully report, that any change made would involve a change in the By-Laws, on which account the Committee hesitates to suggest any. Yet it is evident that many of our members are exceedingly anxious for a change, inasmuch as the month of May is very inconvenient for them to absent themselves from their business.

[Signed] J. G. AMBLER,
S. D. FRENCH,
CHAS. E. FRANCIS,
Committee.

The report of the Committee on the death of W. H. Allen was presented by J. G. Ambler, and on motion of C. E. Francis, adopted.

The Committee to whom was referred that portion of the President's address having reference to the death of W. H. Allen, would respectfully report as follows :

WHEREAS, An all-wise Providence has seen fit to remove by death our professional brother, associate, and permanent member of this Society—one who has left a record worthy of our imitation ; therefore,

Resolved, That in him our profession and this Society has lost one of its brightest ornaments ; society at large and the community in which he lived a social, intelligent and genial member, and one whose life has fully illustrated the principles he professed.

Resolved, That we hereby express our feelings of unfeigned sorrow and regret at this dispensation of Providence, which has cut down amidst his usefulness one who has endeared himself to us in so many ways, by placing on record this declaration of our appreciation of his worth and efforts in behalf of our profession.

Resolved, That the above be entered in the minutes of this Society, and a copy of the same be sent to the family of the deceased, and the dental journals.

[Signed] J. G. AMBLER,
FRANK ABBOTT,
S. B. PALMER,
Committee.

The report of the Committee on the death of M. H. Webb was presented by J. G. Ambler, and on motion was adopted by the Society.

The death of Marshall H. Webb, an honorary member of this organization, having been announced, the undersigned, appointed to draft suitable resolutions respecting his death, in compliance therewith would respectfully report :

That we have heard with emotion of the sudden termination of the life of one who had attained an enviable position in his profession, and whose future appeared so bright and full of promise. Therefore be it

Resolved, That this Society place upon record our expressions of sorrow at his death, and regret that our profession has lost so bright an example of honest and sincere devotion to his profession, whose efforts in its behalf command our respect and appreciation.

Resolved, That the above be placed in our minutes and a copy of the same be sent to the family of the deceased.

[Signed] J. G. AMBLER,
FRANK ABBOTT,
S. B. PALMER,
Committee.

J. G. AMBLER: I claim the privilege of a few words in behalf of my professional brother, Dr. Allen. It was my good fortune some thirty years ago to be associated with his brother, Dr. Charles Allen, on whose death Dr. W. H. Allen, the younger brother, became his successor. From that time to the present my intimacy with him has been continual, and it affords me a great deal of pleasure to say to you that, being on terms of intimacy with him during this entire length of time, I can bear testimony to his uniform consistency and honest devotion to the interests of his profession. He was a man whom we all could not fail to esteem and respect did we but fully know him. Like all of us he had his eccentricities,

which required to be known to be appreciated. He was a man that the profession may well honor. And I do not hesitate to say that there were very few, if any, who excelled him in the care exercised in all his operations—his particularity, his nicety, and his extreme devotion to his profession as regards perfection. Nothing was allowed to pass his hands that he didn't feel conscious was the best he could do. That feeling which is so apt to present itself to all of us—to myself and, I presume, to others—"it will do," I don't believe ever entered his mind; for in his operations and my association with him he was like his brother Charles, whom I considered in his day the finest operator in this country. I therefore make this testimony, voluntarily, in behalf of our deceased brother. With regard to Dr. Webb, younger members of the profession are better able to contribute their meed of commendation than I am.

N. W. Kingsley reported the doings of the conference of State Examiners, held at Lexington, Ky., in February, '83, as follows:

Dr. French wrote me in the beginning of February that there was to be a conference held in Kentucky of State Examiners, and he thought our body ought to be represented. I said to myself, What have we to do with other States? Have we not a law which is as stringent as it is possible probably to get passed by any Legislature? Have we not a Board of Censors who believe they are making as rigid examinations as it is possible to carry out? What have we to do with conferences, unless it be to engage in missionary work? About the same time I received letters from other members of the Board and particularly one from Dr. Straw, urging me to go, and I made arrangements accordingly. I found several states represented—Vermont, Illinois, Ohio, Indiana, Kentucky and Michigan. We found a number of states had passed laws to regulate the practice of dentistry and other states, without laws, were feeling the necessity of similar action to protect themselves. The State of New York, for example, by the stringency of its law, was driving out men who were going into other states to practice, and they felt the need of laws to protect themselves. We suggested from our experience the best kind of legislation for such states. That draft of a law, to be offered to such states, has been printed in the April number of the *Cosmos*, as well as in other journals. It was the result of the deliberations of gentlemen who had had experience, and was believed to be as wise, prudent, and as stringent a law as any Legislature would be likely to adopt. The principal features of this draft were: First, who should be entitled to practice dentistry; second, requiring a board of examiners to pass upon the qualifications of those entering practice thereafter; and third, registration of all qualified practitioners in the state. Those were the three points. The examination that should be required of those who were not qualified otherwise came up as a serious matter of discussion. In no state

that was there represented, so far as I remember, did they permit the degree of M. D. to entitle a man to practice dentistry unless he had been passed upon by the state board of examiners of that state. Our State does. We could not help ourselves. But they have managed to get a law where the medical doctor must pass before the board of dental examiners and show his attainments in dentistry. The D. D. S. is accepted by them without question provided it is from a college they recognize, but they do not recognize all. Those who have no dental degree must go before the board for examination. The character of the examination called out earnest discussion. I endeavored to show those gentlemen that our examination was a superior and rigid one. I fear they thought I was exaggerating it a little. However a committee was appointed to draw up a form of examination which should be uniform throughout the states if the state examiners chose to adopt it, and it was the opinion of the conference that it should be the least that could be required of any candidate. It was decided that a permanent organization should be effected of State Examiners throughout the Union, to meet on the days previous to the days of the meeting of the American Dental Association, and that they should make the examination more stringent from time to time, if the circumstances would justify it and it could probably be carried out. The next conference will be in August, at Niagara Falls. They intend each year to revise this examination with a new form of questions, and at the time of the examination this list is to be handed to the candidate, who will answer them in writing, and that seventy-five per cent. of the list must be satisfactorily answered to permit a man to practice dentistry. That list was printed and has been distributed to the different boards. Our board had them here at its present meeting and used them. Dr. Taft was Chairman of the Committee that prepared the examination paper. In writing to me he said he regarded the list as complete and thorough, and that if a man could answer those questions it would be enough. But I must tell you that when I presented them to our board they said they were not satisfied with them, that they were not equal to the examination which we had uniformly required for years past. So our examination of a day or two since not only covered the entire ground of the printed examination of that conference, but went much further and more searching into every department. In the discussion of this matter before the conference I justified the rigidity of our examination because we are authorized to confer an honor—a diploma and a degree—while other boards of examiners give only a certificate of qualification. We feel, therefore, we must require a more rigid and thorough examination. We hope and believe that the other states will bring theirs up to ours as fast as they can. It is a question of policy and they must go slow. Remember, they say they have to examine a lot of men that we have turned out by our stringent law. They think that such have some rights. Whether we agree with them or not is another question. I cannot but feel that the conference was a valuable one, and, in the words of Dr. Taft, was of more importance and would exert more influence upon the status of dentistry than anything that had occurred for a long period.

J. E. DEXTER: Was any provision made by that conference for the reassembling of the same members, and besides that if reassembling they are to be accredited representatives from their states?

N. W. KINGSLEY: It was agreed that they would notify all State Examiners throughout the United States.

On motion of F. Abbott, it was ordered that N. W. Kingsley be reimbursed for expenses on account of the conference.

The following bills were read and referred to the Committee of By-Laws: N. W. Kingsley, \$70.42; C. K. Urquhart, \$55.

J. E. Dexter, of the Committee on Nominations for Permanent Membership, reported the following: C. A. Woodward, New York; C. W. Harreys, Brooklyn; J. Edw. Line, Rochester.

An election was had, W. F. Winne and J. J. Pitts acting as tellers, the result being that each of the three candidates was declared unanimously elected a permanent member of the Society.

F. French moved that the Treasurer be instructed to pay the Secretary \$100, and C. E. Francis, as an amendment, seconded by C. F. W. Bödecker, moved that he be given a rising vote of thanks. Carried unanimously.

The election of officers resulted as follows, J. J. Pitts and W. F. Winne acting as tellers:

President—L. S. Straw, Newburgh.

Vice-President—Wm. Jarvie, jr., Brooklyn.

Secretary—J. Edw. Line, Rochester.

Treasurer—H. G. Mirick, Brooklyn.

Correspondent—W. H. Atkinson, New York.

Censors—F. French, Rochester; W. H. Colgrove, Johnstown.

The President announced the following appointments:

Arrangements—W. F. Winne, E. C. Baxter, F. L. Ames, Albany.

Publication—J. Edw. Line, F. French, Rochester; C. Barnes, Syracuse.

Ethics—C. F. W. Bödecker, S. G. Perry, New York; C. F. Rich, Saratoga.

Business—M. E. Elmendorf, A. H. Chapman, Brooklyn; F. B. Darby, Elmira.

By-Laws—J. J. Pitts, Brooklyn; C. K. VanVleck, Hudson; J. H. Holly, Warwick.

Prize Essays—C. E. Francis, W. A. Bronson, New York; A. H. Brockway, Brooklyn.

Dental Law—Wm. Carr, New York; C. Barnes, Syracuse; A. M. Holmes, Morrisville.

Dental Practice—J. G. Ambler, New York; S. B. Palmer, Syracuse; B. Rathbun, Dunkirk.

Transactions—O. E. Hill, Brooklyn; E. P. Brown, Flushing; A. N. Priest, Utica.

Codification of Dental Laws—N. W. Kingsley, J. E. Dexter, F. Abbott, New York.

Diagram of Incisor Tooth (Special)—Frank Abbott, C. E. Francis, S. G. Perry,
New York.

Delegates to American Dental Association—E. Parmly Brown and J. Edw.
Line.

The Committee of By-Laws reported favorably on the bill of C. K. Urquhart, §55. The report was adopted and bill ordered paid on the conditions named in the report of the Committee of Publication.

On motion of J. G. Ambler, a vote of thanks was tendered Prof. Wm. Hailes, jr., for his lecture.

On motion, the Treasurer was requested to pay N. W. Kingsley §35 from the Whitney fund, for prize essay.

The Society then adjourned.

J. EDW. LINE,
Secretary.

ANNUAL ADDRESS.

By President L. S. STRAW, M. D. S., Newburgh.

GENTLEMEN OF THE DENTAL SOCIETY OF THE STATE
OF NEW YORK :

I AM indebted to your kindness, more than any desert of my own, for the honor you conferred upon me one year ago, and I should now feel a warrantable embarrassment did I not presume that you will still continue indulgent. Permit me to thank you in a very emphatic manner, while I express the hope that the deliberations and discussions of the present session will be equal in interest to those of any previous year.

We meet as members of a Society organized in pursuance of a law granted us fifteen years ago the seventh day of April just past, and it is meet and proper that we should, while passing, pay a tribute of respect to the memory of the two departed ones who, with another, framed and were instrumental in securing the passage of the act under which we were incorporated. At the same time let me speak words of cheer to the surviving one of the three, and express the hope that he may be spared to meet with us yet many years. Since our organization we have gone on "prospering and to prosper." Our printed transactions have demonstrated that we deserve to be called "*The Dental Society of the State of New York.*" The records of our proceedings have been published from year to year, with the exception of the last, which I hope may, together with the doings of the present session, be found in printed form in good time. It is but due to those who have devoted time and talent in the preparation of papers, that they see and feel that their efforts are appreciated and their ideas sent abroad in journals or bound volumes. Discussions, also, upon subjects coming before us, are often of great value and should not be lost. We are here as repre-

sentatives, and the intelligent constituency which sent us should know how we have spent our time, and they ask to see the fruits of our labors.

We hold our annual meetings not alone for mutual benefit, but to do a work which is highly essential to the vital interests of the profession in our State. I would that every dentist of recognized ability might feel the importance of doing all in his power towards the advancement and establishment upon a reliable basis of his chosen profession, and to this end can he do less than take an active interest in our State and District Societies? How can he stay at home and not participate in labors of love to himself and the rest of mankind? I have no sympathy with that brother who reposes himself in his quiet selfishness and waits for others to sow seed, thinking to himself, if there is any harvest, he will get his share and be on hand in time for the gathering in.

It has been my day-dream of some forty years that the time would come when dentistry would occupy a position in all respects as respectable as that of any other profession; when the well earned title of D. D. S. or M. D. S. would be a passport to recognition and acceptance into the highest circles of intelligence and worth, and I cannot avoid congratulating you to-day upon the near attainment of our desires. We have at any rate to look but a short distance into the future. The results of talent, energy, and associative effort are everywhere apparent, and another decade distinguished by the same onward march as the last, will, I trust, find us in the enjoyment of a standing before the world which comes from a high order of scientific attainments, and when, speaking for some of you as well as myself, we shall, if compelled by age or circumstances, be able to retire from active duties, with the inward consciousness that we have done all in our power for ourselves, for society, and for our chosen profession, and have left some foot-prints which may encourage those who come after to still higher achievements, and which may lead them on in the pursuit of knowledge which shall cover not only our specialty, but embrace all that is kindred, *all* that pertains to our physical being, a thorough knowledge of which is becoming more and more essential every day to the dental practitioner.

From a well laid foundation do we look for perfection in

architecture. To be a good pathologist the dentist must understand and be well versed in physiology, and a knowledge of chemistry will be to him a guiding star. Forty years ago the relation of dental to medical science was not studied, and of course not understood; but to-day it is becoming recognized, and soon will form the basis of all the faith that is in us. I fear we do not sufficiently estimate the privilege of living in days so full of progress, living in times when

“ To live is but to learn.”

Without wishing to arrogate too much credit to ourselves, it is beyond dispute that since the passage of the law regulating the practice of dentistry in this State, a much better tone and a broader view has taken possession of both patient and dentist; the one seeing that to command respect and patronage, a knowledge more extended than heretofore is legally required; the other taking cognisance of statutes, sees readily that we are guarding our specialty for their good—and that we propose to emerge from that chaotic unreliability which has rested upon us—sees that dentistry is gathering to itself terms, manliness, probity and intelligence.

The advantage to the public in regulating by law the practice of dentistry will soon be manifest by the promotion of dental education and the diminished influence of the pretender. There may be those who still believe that statutes can be of no benefit to a profession which is wending its way up the rugged steeps of science. I fail to see that legal enactments have or can in any manner stay the upward progress. I do see in the near future, that the honor of belonging to a noble profession will redound only to those who have conformed to the just requirements of our State law. The charlatan and pretender must ere long take the rank to which they belong, and when the statute broom has finally swept them off the stage, society will say that “nothing in their life so much became them as the leaving it.”

Constituted as mankind is, how few instinctively strive for excellence, how many for something far short of it. Our law does not in any manner prohibit, but demands that a person thoroughly prepare himself to do all that society has a reason to expect at his hands. Dental colleges and laws are handmaids for good, and communities will soon ask to see

diplomas or certificates of qualification ; will look for something denoting merit—something besides and beyond a flaming advertisement and a swinging sign—something recognized as not merely the promptings of dishonest greed, but a modest array of qualities which go to make up a symmetrical and complete professional character. Then communities will find that the restraints of law have closed the wide-open doors of the past, and the marvelous influx of the last thirty years been legally and healthfully diminished. When we consider the advantages offered to-day by our dental colleges, it becomes us to endorse the position of our Board of Censors, to subject to the *most rigid* examination any and every candidate who desires to enter our ranks by this gate. The coming young man who has not the desire or ability to take rank by availing himself of a thorough course of instruction, should be requested to go West, where land is cheap and labor in demand. We see state after state wheeling into line, and ere long all our neighbors will have passed legal enactments.

A near uniformity should be arrived at between the different states, and particularly in the standard of examinations. To this end, by the recommendation of your Board of Censors, I took the responsibility of commissioning Dr. N. W. Kingsley to go to Lexington, Ky., to attend a meeting of delegates from the states having Boards of Examiners, which meeting occurred in February last. Dr. Kingsley submitted to me a condensed report, but as he has consented to render a full and detailed account to you of the conference, I shall ask him to present the same at the proper time. His expenses for the trip I trust the Society will take pleasure in returning to him, and I feel assured you will think with him, that the meeting was productive of good and the way paved for the best results in the future. I might mention what may not be known to all of you, that ours is the only State which confers a diploma. I feel that we have deported ourselves well while holding this dignified position, and it should be passed to the credit of our legislators that they have added nothing to the debit side of misplaced confidence. Other states grant licenses, and did they confer diplomas, such credentials could not be accepted in the State of New York, where no one is allowed to practice as *a new man*, unless he

has a diploma from "The State Society," or from a reputable medical or dental college, recognized as such by said Society. Whether they, returning the kindness, accept our parchments in lieu of an examination, I am not prepared to say. In all this legal suasion are we enabled to see the hand upon the wall, and ere long, if we faint not, we shall stand upon the pages of history as a learned profession, *distinct, independent, and self-reliant*, not hanging upon, but having a *kinship* to the medical profession, that profession which has for many years been held in high esteem, and which in this State has felt the encouragement of statutes ever since 1806. Justice requires an acknowledgment of our obligations to the honorable Legislature for the recognition and privilege conferred upon us in 1868. And is it too much to hope, that ere long we may be called upon to thank them for material aid in the endowment of one or more dental colleges? That all safeguards protecting society and our profession may shed abroad their humanitarian influence, I do advise every member of this and the district societies to report any and all violations of law to the State Committee, and it will soon come to be felt that there is but one straight road to that gate which is closed, but which opens wide to any one who is in possession of the key of knowledge.

I have already said too much upon a favorite theme; it is not exhausted, but as most, if not all, of you have long since become true converts, I will content myself in the belief that ere long the Dental Societies of the State of New York will demonstrate that in "union there is strength." As yet I fear there is a lack of vital interest in some one or more of the districts, arising partly, no doubt, from a fancied difficulty with dentists in leaving their offices and patients, expense, loss of time, etc., etc. It is true that a degree of effort is necessary, and some sacrifice unavoidable; but there is a great good attained, in leaving the dull monotony of office confinement, abandoning for a few hours the arduous duties of our profession, and mingling with those who have like aspirations with ourselves. We always go home with broader and more enlightened views. Some one has said that the undisturbed routine of office life will produce intellectual somnolence in him who plods and plods his daily round, unmindful of all besides the few objects and scenes which pass ever and anon

before him. Believing this, I would that some method might be devised, and some missionary work done, to induce our brethren throughout the State to loan themselves to the support and maintenance of the district societies, laying aside all jealousies, and joining heart and hand in duties which grow out of fellowship in a common interest. Frequent intercourse tends to modify differences of opinion. The more thoroughly men become acquainted and the more they come to respect the sentiments of each other, the better they work together in the accomplishment of good, and the more harmoniously they will act with reference to great principles and general improvement. It has been said by some that we are occupied too much with theories, and are not equally endeavoring to improve methods of operating, thereby attaining a greater skill and thoroughness; that we think and talk profoundly upon the cause of caries, effects of different metals in the oral cavity, non-compatibility of the one or the other, bacteria, acid causation, etc. Enjoying with you all ideas relating to the many subjects which claim our thought and attention, I still hope that through ample discussion this meeting will do much to sift and settle conflicting theories. We are able to-day to cope with the evil effects of decayed teeth, and in a measure to stay the wasting process, or substitute dentures which defy detection; but to stop, stay, arrest and prevent the cause is a task to which we should loan our strongest efforts—a task which future generations must meet or fare worse. If then we preach that others may practice, what's the harm? If we can live that others may take courage from our example, all the better.

I should like to say something to ourselves especially which might guard us against the prostrating effects of office life. A word to the younger ones at least, so that they might understand how important are regular habits, how necessary a certain amount of daily out-door air and vigorous exercise, how best to do justice to our patients without bringing prostration upon ourselves—that prostration which comes in part from the nature of our calling, feverish, nervous, and exhausting. We can better ourselves by having fewer hours at the chair, fewer patients, higher prices, walks on higher hills, and a continued higher standard of physical tone as the result; be better paid and better appreciated while we sojourn here be-

low, and perchance lamented when we have been taken hence. A thorough knowledge of physiology and a closer walk with its principles must be recommended as a "*sine qua non*" to a long life and an extended usefulness. Without health all the blessings of Providence are lost or measurably diminished. Is it not directly in the province of the dentist to answer intelligently and satisfactorily the many inquiries coming from patients as to the cause of this wide-spread decay of teeth at the present day? I would that our profession were able one and all to point out the true cause and the preventative; able to unfold the problem, and thus be instrumental, in the hands of a Divine Providence, in rolling back this onward march of dental degeneracy, if it may be so called, so that with the lapse of a few generations the ground might be gained which has been lost in the century just past. The thinking public is all ready to be enlightened, and will repose more confidence in us as a profession if we can point out the straight road which will lead back to the point of departure, long since taken.

Before closing this too long address, I would call your attention to a slight falling off in the attendance upon our annual meetings by members residing in different parts of the State, and the apparent decreasing interest in our two days' sessions, and ask if the cause lie in the wrong time of our meetings. Perhaps the appointment of a committee to consider and report upon the best means of securing a larger attendance might be advisable. It would seem that the interchange of ideas, the greetings of an exalted friendship, the devising means for the promotion of the best interests of our chosen profession, which have in the past so eminently characterized our gatherings, should be sufficient to draw together a good representation from every district in the State. Perhaps the presentation and discussion of subjects pertaining to our specialty are becoming hackneyed, but this should not be the case, unless we are willing to stop where we are, and feel that our advancement has reached a climax, and that there is nothing new to be learned. On the contrary, in this last half of the nineteenth century, everything in art and science is on the move, and progress is the characteristic of the times, and dentistry is keeping pace with any and all other professions. Is it then out of place for me to ask each

one and all of you to make individual efforts towards upholding and sustaining this our State Society, so that next year there may be scarcely room in this hall for the representative gathering.

During the last year we have been called upon to mourn the loss by death of one of our members, Dr. Wm. H. Allen, and I trust a committee will be appointed to present a memorial which shall testify to the worth of so good and true a man and brother, who devoted his life and energies to the promotion and advancement of his chosen profession, and who died as he lived, in the faithful discharge of his professional duties. Let us all emulate his virtues, and so render ourselves worthy of that reward which is sure to follow.

DISEASE.

By W. H. ATKINSON, M. D., D. D. S., New York.

EASE and *dis*-ease are but effects of nutrient movements that may be perceived or unperceived by the body under their dominion, in accordance with the attention or inattention of consciousness of the body.

Ease (health) is a regulated interchange of activities in molecules in accord with the lay-out or *type* of organs.

Dis-ease is disturbance of this order of interblending of mass and energy. Coalescence of these, mass and energy, is the process by which variety in conformation of body is *pro*-duced and maintained. The degrees of satisfaction of these blendings known as ripeness or ripening, present us with nebulæ, suns, planets and inhabitants of planets.

To get a complete and exhaustive conception of what disease is, it will be necessary, therefore, to describe in some way the formation and behavior of all bodies subject to disease or imperfect nutrient activity.

1. The Radiance of solar fullness in filling cosmic voidness, produces planets and inhabitants of planets by a procession of impacts of energy, exemplified in the production and feeding (maintaining) of individual bodies.

2. Any disturbances of the succession of impacts minifies or prevents the formation and feeding of these bodies.

3. When bodies or parts of bodies are thus minified they are weak and hence are unable to operate the changes denominated functional activities of molecular-, corpuscular-, tissual-, organic-, systemic- or conscious-manifestation of character in their completeness.

This minification of functional power lays the foundation of *un*-rest, *dis*-satisfaction of the demand for energy, which is the condition known as disease.

The way in which this is brought about is so occult and

complicated as to render it difficult of apprehension and explanation.

Radiance penetrating cosmic voidness produces molecular-mass, from which arise, by continuity of the alternate ongoing and arrest of radiant impact, the various bodies which appear in the heavens. These consist of solar systems made up of suns, planets and inhabitants of planets.

Radiancy is the power (or *Patris*) and mass is the *Matrix* by which worlds are produced. The process of production may be said to consist of interpenetration, intussusception, invagination and coalescence of these dynamic and static aspects of body and being in accord to type in molecular-, corpuscular-, tissual-, organic-, systemic- and conscious-manifestation.

It is said that the *débris* of minerals makes vegetables a possibility and that the disintegration of these makes the basis of the animal kingdom. In view of this statement may we not legitimately accept the saying, that in all forms of feeders, the *débris* of each category becomes the food of the next below it in the organization of the inhabitants of this and other planets? Acceptance of affete and rejection of effete and excessive portions of food constituting the process of nutrition, must be regular and rythmical to be physiological. When irregular, by deficiency or perturbation of nutrient currents, it becomes pathological—*disease*.

Is disease inherited? The possibility of both *case* (the study of which is physiology) and *disease* (the study of which is pathology) being transmitted from antecedent bodies has been demonstrated.

Man, as the culmination of the manifoldness and simplicity of cosmic and planetary function, is the embodiment of psychic and bodily manifestation of *function*, or demand and supply in the production and maintainance of suns and systems in space by solar fullness penetrating cosmic voidness. The begetting, gestating (ripening) and disrupting of worlds is re-presented by the generation and career of inhabitants—at the head of which the human race is conspicuous.

The revelation and ripening of the formulæ of science, speculative and exact, have been attained through mutations in mind and matter, being grasped by consciousness in multiplied observations.

Time and strength would fail us, were we to attempt justification of these statements by representing the mutations that mark the history of the development of the sciences. If science be the "record of regulated observation of facts," as is so persistently reiterated by materialists, we are bound to ask what "observation" consists of?

First, we must have the power of perception. Second, this must be so developed as to enable us to co-relate observations in understandable series so as to reveal the principles, laws and methods of procedure to consciousness.

As mathematics is independent of bodily or material entanglement by belonging exclusively to the domain of consciousness or mind, we can only bring it to bear upon physics as the means of discovery and correction of the formulæ of science in astronomy, geography and physiology.

A close reading of the record will show this in considering the old and new styles of calculating time. In the discovery of gravitation, the precession of the equinoxes and of planets under the guidance of the imperfect astronomy (astrology) of the ancients, the divisions of time were insufficient to so calculate the seasons of the year as to have them occur in the same months. By the advent of Copernicus this was corrected and the new style of measurement of time was promulgated, which still holds good.

In pursuit of the explanation of the precession of the equinoxes, the shape of the earth was re-examined as to a possible causative relation to retarded diurnal motion. It turns out that the equatorial diameter of the globe exceeds that of the polar diameter sufficiently to account for the difference between the old and new styles of estimating, time by the difference of the sun's attraction, between sphericity of the earth in the old style and an oblate form in the new style.

The discovery of Neptune was the result of calculations based upon observations of perturbations in the orbits of other planets.

Thus astronomy and geography have progressed and are advancing to higher and better pronouncements as well as physiology, psychology and hygiene.

Coalescence, or a flowing together, can only take place in ethers, gases and liquids or fluids; therefore solids and semi-

solids must be melted or dissolved to reduce them to a state capable of intimate admixture or blending.

Incomplete coalescence of primates precedes imperfect embodiments of types in molecules and their massing in cosmic dust—nebula, sun, star, planet and occupant of planet. This imperfect coalescence is the inception of disease in crystal, cell, corpuscle, organ and system.

Admixture is aggregation; blending is such a change of molecular constitution as to render heterogenous masses homogeneous in character. A condition known as temperature is a prominent factor in the conversion of solids and semi-solids into liquids, gases, ethers and radiants, and it must be taken into account in any investigations of healthful or fractional conditions of functioning bodies.

Completeness or wholeness of function is health or wholeness as universology teaches; while incompleteness of performance of process fractionalizes its career which is minified function or *dis-ease*.

The inception of disease may be said to depend upon perturbation in the temperature of the body known as taking cold, "catching cold."

Paralellism of all the stages of the process of feeding affords normal blood out of which the tissues are formed and nourished under the fulfillment of the law of demand and supply in every form of functioning body, large or small.

Deficiency (hunger) calls for sufficiency, which is attained by exercise of the whole range of movements in the process of feeding in, first, prehension; second, comminution (mastication); third, insalivation; fourth, deglutition; fifth, chymification; sixth, emulsification of carbo-hydrates; seventh, chylication (precipitation of effete or unchurned portions of food-mass); eighth, absorption into the blood tract through the chyliciferous vessels; and ninth, vivification by admixture of oxygen and plus (+) in the respiratory tracts. When this is effected in full measure we have pure blood out of which to sustain the elements of the functioning machinery in health in formed bodies; and producing these elements in forming bodies, by converting blood into protoplasm and this into embryonal corpuscles and these into the tissues and organs of functioning systems, by aggregation and coalescence ac-

ording to tydal requirement in the construction and nourishment or support of the parts and the entire system.

Let us state then that from bathybius (protoplasm) to blood and breath and from breath to blood and protoplasm (bathybius) we may trace the line of *solar radiancy* as the plus (+) energy that awakens the potencies of atoms and engages them in forming the molecules out of which the proteinaceous compounds are generated, that are capable of being metamorphosed into tissues.

Let us ask then, what are the factors of function? And answer by stating—LIGHT is the plus (+) and ATOMS the minus (−) cosmic entities, movements in which display to observation cosmic, solar, stellar and planetary systems which are the make-up of the cosmos in the great sense—the Universe, as it is called.

Take a complete system of organs at the point of its career known as its beginning. It will be perceived that all the possibilities of function are immanent and emmanent in it and its surroundings.

Use of the machinery wears it out by reason of the changes brought about in its parts at their point of contact, under the impact and variety in mode of the energy that operates the functions of the parts and the entire machine.

This waste of wear or loss must be restored to it by repair of the machine to keep it in working order. This process of repair in functioning bodies is known as feeding, and is operated by a complicated series of preparatory sub-processes in a triple apparatus in respiratory, circulatory and alimentary tracts. These sub-processes operate upon the crude materials out of which pabulum is manufactured, from which tissues are fed by appropriation of afféte and rejection of efféte and excessive portions of pabulum.

Appropriation of pabulum is called assimilation and is only attributed to the vegetable and animal kingdoms in extant physiologies.

This process of appropriation and rejection of portions of pabulum involves fine division and admixture of the materials of the food in the crude sense.

In the mineral kingdom we would say solution and precipitation were involved in the production of crystals.

In a solution of silicon precipitation produces *silicx*, by

crystalization according to a special six-sided type, and *silica* in an amorphous powder, where crystalline type is wanting.

This immanence and emmanence of type is always a factor in building and destroying mineral, vegetable and animal bodies.

Mineralistic parts of vegetables constitute their solidity in stalk, fruit and seed. These elements are carried to place by solution in water through channels for the circulation of such fluids. Water is called "the universal solvent," and the saying finds confirmation in all physiological investigations.

An English experimentalist finds that for every pound of mineral matter assimilated by a plant an average of 2,000 lbs. of water is absorbed. At the French observatory of Mont Souris it was found that in rich soil 7,227 lbs. of water passed through the roots of the wheat plants for every pound of grain produced, while in a very poor soil 2,693 lbs. of water passed through the wheat roots for each pound of grain matured.

The depositing of these solids necessitates a dissipation of the water, which is effected by transpiration, to form the haulm, fruit and seed. This is purgation—expurgation.

The lowest form of animals so nearly repeats this mode of appropriation of weak solution of pabulum as to make it difficult to detect the difference in the mode of assimilation.

The amœbæ bouché and débouché at the same point of their bodies. That is, they improvise mouth and anus on the side next to the thing they devour and thus *eat* by closing around the article of food, and *defecate* by unfolding of the body-walls, allowing the unassimilable parts of food to fall away.

This is the earliest example of the division of animals classified as "Monotremata;" thus showing us that vomiting and purging are identical in purpose, viz.: getting rid of débris and excess of food.

Those conditions known as *diseases* are the results of perturbation in the nutrient processes, which results have not been eliminated in time to prevent debility, aberation or death of the elements of the tissues. Thus local disease is ever the manifestation of constitutional debility being focalized by local lesions that would be of no account in soundness of blood-crassus; *i. e.*, all sorts of fracture heal by first inten-

tion, by simple reposition of the divided parts in healthy bodies; while tubercle, tumor, cancer and infectious diseases hold high carnival in imperfectly elaborated blood-plasm.

To prevent disease live in accordance with hygienic laws, the principal of which is the intelligent use of general gymnastics, thus washing out all the channels of nutrient activity by vigorous exercise. For special obstructions resort to special gymnastics, viz.: in respiratory tracts, by vigorous breathing; in vascular tracts, by accelerated circulation, thus hastening secretion and excretion; and in alimentary tracts, by vomiting, purging and sweating.

For infectious diseases, neutralize the poison; and for local disease, extirpate the abnormal part.

EXTRACTION OF DECIDUOUS TEETH.

By N. W. KINGSLEY, D. D. S., M. D. S., New York.

WHITNEY MEMORIAL PRIZE ESSAY.

QUITE recently there have appeared in the reports of papers and discussions before dental societies, opinions expressed upon the extraction of the deciduous teeth which are so much at variance with the author's experience and observations that he ventures to put his views in the form of an essay.

The views which he deems erroneous have shown a misconception of the order in which the temporary teeth are shed and their places supplied by permanent ones, and also in the idea which has been entertained that the premature removal of the deciduous teeth caused a shrinkage of the jaw, and created an irregularity in the permanent dental arch.

It would hardly seem possible, in view of the researches of the last quarter of a century, that any educated dentist could hold any other than one opinion, or that it should be necessary at this time to correct any erroneous impressions. Two or three illustrations will serve to show the errors alluded to.

A gentleman of well known eminence in the profession was describing before one of the societies his method of caring for children's teeth, when he said among other things, "that as soon as there was any evidence of the eruption of a permanent tooth he removed the deciduous tooth to give it room. Beginning with the central incisors, which were the first to make their appearance, if the removal of the centrals did not promise ample room for their successors then he also took out the lateral incisors. If when the lateral incisors emerged there appeared to be a lack of room, he removed the temporary canine—following this, if the per-

manent canine when it appeared showed a want of space, he removed the first temporary molar, and in like manner, and in their turn according to his plan, the second temporary molar was removed to make room for the first bicuspid, and finally, if there was not room in the dental arch for the second bicuspid he extracted it, and by this course of procedure he was always able to secure a perfectly regular dental arch in the second set, or permanent teeth."

This is the teaching of one who holds no mean place in the estimation of his fellow practitioners.

Another gentleman, occupying also a prominent place in dental societies, says that in his treatment of children's teeth, when the time arrives for the shedding of a temporary tooth he extracts it to give the permanent tooth a chance, regardless of any evidence that the permanent tooth is ready to erupt. He extracts when the period arrives for the permanent tooth to erupt, because he holds that its eruption is retarded by the continued presence of the temporary one. And again, another gentleman whose exalted attainments have been conceded for a generation, maintains that the premature extraction of temporary teeth involves a contraction of the jaws. It is not an error in the use of terms that he makes (using the word jaws when he means alveolar processes), but he refers to a contraction of the jaw bones themselves.

These examples are sufficient to illustrate the object of this paper, for in the opinion of the writer each and all are erroneous.

Beginning with the last, it is a settled fact that the development of the jaw bones and alveolar processes are entirely independent operations of nature.

There is a period in the history of the jaw when it is as much a jaw bone as at any subsequent time, and before a tooth has made any appearance. If through any freak of nature no tooth ever develops, the jaw will in no respect be aborted in its growth. It will continue to thicken and elongate in the case of the lower one, and widen and enlarge in the case of the upper, until it has reached the full measure of its inherited type, and neither the absence of teeth congenitally nor their removal after development will interfere with this function.

But in the growth of the alveoli as a process of the jaw we find an entirely different condition.

Alveoli are the result of the development of the teeth and coincident with their growth. The alveolar processes to a certain extent are constantly changing. It is quite doubtful if a single bony particle of the alveoli of adult life formed a part of the alveoli of childhood.

In a purely physiological condition it is forming and absorbing—forming again and again absorbing—and again a third time forming, only to be absorbed again when the final issue arrives of the loss of the teeth.

In a pathological condition this process of formation and absorption may go on repeatedly.

The mistaken idea of the shrinkage of the jaws must certainly be based upon changes which are apparent in alveolar processes, but which *do not involve the jaw*.

That the premature extraction of the deciduous teeth involves a contraction of the jaws is a mistake, and to a limited extent it is a misconception that such extraction will involve such contraction of the alveolar arch as will induce irregularity, either in the period or order of eruption, or the arrangement of the permanent set. This is true as applied to sixteen out of twenty teeth that make up the complement of the deciduous set.

The order of shedding and of eruption shows that the first to change places are the central incisors; secondly, the lateral incisors; thirdly, *not* the canines, but, frequently the second molar for the second bicuspid; fourthly, the remaining molar for the other bicuspid, and lastly the canines.

In a normal condition the jaw bones *continue* their growth *after* the growth of process about the temporary teeth has ceased, and thus as the period approaches for the eruption of the permanent teeth we find spaces between the temporary ones, thus enlarging the alveolar arch for the accommodation of the larger members of the permanent group.

The growth or enlargement of that part of the jaw upon which the deciduous dental arch is situated seems to have obtained its complete development at the period of shedding, and the incisors and bicuspid will find room equal to their necessities.

The premature extraction of any or all even of these eight

named teeth, will not interfere with the natural and expected enlargement of the jaw, but the premature extraction of the canine teeth will be likely to lead to most serious results.

After the jaw bone has ceased its enlargement there seems an almost universal tendency for the bicuspid and molars to crowd to the anterior part of the mouth, and to fill any space in the alveolar arch that may not already be occupied. This is not only true in the formative period, but is equally true in adult life, if the occlusion of the opposing jaw does not counteract it. The consequence of this inevitable tendency is, that unless the temporary canines remain in their places until their permanent successors are ready to emerge, the bicuspid and whatever molars are behind them will crowd forward and occupy the space which belongs to the canines.

We thus see that whatever may be the inducement to remove any or all of the deciduous teeth prior to their period of shedding, the canines should be retained until there is ample evidence of the early emergence of their permanent successors, unless the health and comfort of the child would be sacrificed in so doing. But it would be far better to remove one or all of the deciduous teeth and take the risks of irregularity in the permanent ones, than to submit the child to constant suffering and consequent injury to its health by their retention.

In a case of retarded dentition the writer takes issue with the practitioner who removes the deciduous teeth when the usual period arrives for shedding, regardless of any evidence that the permanent ones are ready to erupt. *His* reason is, that the retention of the temporary tooth retards the growth of the permanent one.

In this issue is involved the function of absorption, and his practice would indicate that the non-absorption of the temporary tooth was the primal cause of the retarded dentition, rather than that retarded dentition is the cause of the non-absorption. Cause and effect are in his mind evidently transposed.

Such a practice will unquestionably lead in many cases to serious results.

It is not always certain, when there is no outward indication, that a tooth lies concealed.

It is not a very uncommon thing to see some one tooth of the permanent set missing, and to learn that it never erupted. And again, a retarded dentition generally indicates teeth of better organization and less liable to decay than those which have developed at an earlier age.

So long as deciduous teeth remain in the jaw in a firm and undecayed condition, with no evidence of a misdirection of their permanent successors, it is not advisable to remove them.

PROFESSIONAL ATTAINMENTS AND POPULAR NEEDS.

By S. B. PALMER, M. D. S., Syracuse.

IT must be apparent to every dental practitioner that there has been marked advancement in the preservation of teeth within the last fifteen years. Many and varied are the means which have contributed to this end. Higher education, improved appliances, better knowledge of diseases of the mouth and structure of teeth, and the discovery of other materials for fillings, have all helped to bring about this happy result. Broken down teeth, and even roots, once considered detrimental, are now made to support artificial crowns, with both comfort to the patient and credit to the dentist. In addition to present attainments there is promise of a greater boon to suffering humanity, that dentistry may soon meet the demands of popular needs to an extent not yet realized. At no previous date in the history of dentistry could we have looked for the fulfillment of this promise, because there was really no supply for the demand; or, in other words, the supplies were far above the reach of people in moderate circumstances.

To-day it is well known that teeth may be preserved with other fillings than gold; that the back teeth in particular may thus be filled with no great detriment to external appearances; and further, that gold fillings may be inserted by the young graduate who is in need of practice, at less cost than the established practitioner would care to operate for. Unfortunately for the young dentist and the needy patient, there is a professional gulf which hinders the public from receiving benefits which otherwise might be honorably bestowed. I say *honorably*, because the rendering of services below the standard in a given locality is not considered creditable or professional, even though the demand be just and the services rendered a public necessity. Any dentist

in good standing who operates for patients that have left other offices on account of high prices loses reputation by the act.

Gentlemen, the problem before us is as difficult of amicable adjustment as the one which troubles England and Ireland at the present time. As the demand for cheaper dentistry increases, and the possibilities to furnish it become practicable, we will see more and more violations of the code of ethics by those entitled to honorable standing in the profession. John Stuart Mill said in Parliament: "Where the captain of a ship, or the master of a school, found it necessary to resort continually to the cat-o'-nine-tails, or the birch, in order to keep his crew, or his class, quiet and at work, nothing more was needed to show that there must be something out of gear in his management." Considering that there is a large class of people below the present reach and benefits of dentistry, also that there are dentists ready and anxious to bestow such benefits, does it not show that there is something wrong in the sentiment which prevents the consummation of this worthy object? There is an excuse for the present condition of things. The graduate honors the teachings of his instructor; he starts high and aims high; skill and talent will command their reward, and thus there is proper stimulant to good work; and we have not a word to utter against the highest practice of dentistry. As we look at the other extreme it is plain to be seen that cheap dentistry has no professional recognition or sanction; the *fees* demanded, rather than the work performed, become the standard of respectability. So long as the profession maintains, or asserts, the line of respectability upon other merits than the quality of service rendered, so long will there be recorded dishonorable acts and violations of the code. It is sad when an intelligent patient is compelled, from adverse circumstances, to seek the services of a lower priced operator. His very inquiries give him the reputation of a "dental shopper," and if he succeeds in obtaining a sitting in an honorable chair he feels himself in part a charity patient, or is requested not to make the transaction public. If he consults advertisements and finds the dentist suited to his means, it would be strange indeed if he had not already been warned that this man was a "Cheap John."

To illustrate I will notice a case reported at a meeting of the Syracuse Dental Society, which typifies the relations of the profession to public needs. A young lady with limited means and in poor health was in the city for medical treatment. She was advised to have her teeth put in order. Being ignorant of dentistry and dental customs, she set about the task as she would to purchase an article of merchandise; in short, went "shopping." I will not give the report, but in substance will say that she called upon me, I being the eighth dentist consulted. She did not ask for work to be done, nor prices, but desired a statement of the number of cavities to be filled. She had been told that seven cavities needed filling, and from that to twenty. She was, of course, much confused; and as respecting the honor and integrity of dentists, she had been told that those who would do the work within her means were unworthy of her confidence. It was evident that this representative of popular needs found in dentistry a monopoly as exacting as we find in the manufacture and sale of dental supplies. I was glad to give the advice sought, and advised that ten or twelve cavities be filled as soon as convenient. I told her, too, that the remaining ones could be left six or eight months without injury. I told her that the different representations were made from various standpoints; that there might be twenty cavities filled honestly, but not necessarily at once. Thus I could reconcile the wide margins given as to the number of fillings; but respecting the prejudice implanted in her mind touching the courtesy and ability of dentists there could be nothing flattering said. I could only recommend her to employ some one who would work for the price she could afford to pay.

The report of this case at the meeting above mentioned plainly showed the hindrances in the way of like applicants for dental services. Each member seemed proud of his adherence to the usual customs of honor; that the case was turned away rather than under-bid his brother practitioner. This was professionally noble and manly. But what of the other side, when this seemingly shuts out one-fourth of our population from the practical benefits of our profession, or compels them to employ persons represented as unqualified for practice? We behold the oil of professional

honor and dignity, and the water of popular needs. Without some professional concession there can be no unity.

The presentation of this paper serves no personal interests; it demands no Society action. We would suggest that the standing of a dentist should rank according to his fidelity in the discharge of his duties to the public and his conduct towards his professional brethren. It should be honorable to operate as he could afford and according to circumstances. It is dishonorable to solicit patients, or retain them from another practice, by low prices. It should be honorable for the beginner to start professionally and openly, as too many are compelled to do secretly. True talent will rise. Because the student is compelled to work his way through college it is no sign he will stay at the bottom of practice. It cannot be expected that the increasing demand for dentistry will be supplied upon the prescribed plans heretofore practiced. Competition is inevitable; it is our duty to at least allow it to become respectable. It is said that a hunter, being cornered, for once thought best to call for Divine mercy. He said: "Oh, Lord, help me if you can, but if you can't help *me*, please don't help the bear." If *we* cannot help the poor and needy, let us not hinder others from doing this Christian duty.

ANATOMY AND PHYSIOLOGY OF CLEFT PALATE.

By A. P. SOUTHWICK, M. D. S., Buffalo.

IT was with extreme reluctance that I promised to write a short paper to be read before this body, knowing full well that the subject had been presented to you before, and by abler hands. But thinking I might engage your attention for a few moments upon a deformity that has much to interest the student (as we all are in anatomy), whether viewed in its normal or its abnormal conditions, claiming as we do to be dental surgeons, this subject should certainly have some share of our attention. What do we understand by the term *congenital cleft palate*? In general terms a deformed or want of perfect formation of the roof of the mouth at birth, including all the various conditions in which we find both the hard and soft parts.

The primary cause of these organic lesions is, I think, but imperfectly understood by the best physiologists of the times, some attributing the defect to one cause and some to another, and both differing widely in their individual views. We often learn valuable lessons and facts worth preserving by the study of the animal kingdom. This calls to mind an historic fact bearing upon this very subject. A gentleman became the possessor of a pair of tiger cubs and determined as far as possible to domesticate them, and to that end fed them but little meat, confining them mostly to a vegetable diet. The cubs grew to full maturity, apparently none the worse for their change of diet and habits. In due course of time the tigress presented her consort with a pair of twins, but they were doomed to die in early life, as the roof of the mouth was wanting, a condition I believe that never occurs with animals in their natural state. The experiment was then tried of feeding the animals on small game just as killed. The result was that the next pair of cubs was perfect. This would go to show that in the first instance the

food of the parents was deficient in bone-making material, and the result of the experiment of feeding them on small boned animals that they could masticate, as they would in the wild state, thereby giving them the lime as nature intended, was productive of perfect formation. Congenital cleft palate, therefore, is evidently the result of perverted or defective nutrition, which results from a variety of causes more or less obscure.

But before we proceed to the description of the malformed condition and its treatment, let us for a few moments give our attention to the parts involved within the scope of this paper in their normal condition. The greater portion of the roof of the mouth is composed of two horizontal plates of bone arising from the inner surface of the alveolar process, and is developed by two lateral halves uniting at the center with the vomer. The anterior portion, including the incisor portion, is supposed to be developed by two distinct centers; but the early age at which these bones are formed makes it somewhat difficult to determine with precision the number of distinct points of ossification. But the convincing proof of distinct centers for the anterior portion is the course of the fissure through the process, as in the case of double fissure, and what is called double hair lip, isolating the incisor portion and leaving it attached to the vomer. At the posterior edge of the hard palate is situated the two palate bones to which are attached the tensor palati and azygos muscles, also the body of the soft palate. The soft palate extends downwards and backwards, making an incomplete curtain or septum between the mouth and pharynx, and in a state of rest its muscles are relaxed and it hangs pendant near the base of the tongue. The principal muscles controlling its action in deglutition or articulation, or from any cause that makes it necessary to close the passage between the pharynx and the nares, are the levator palati, tensor palati, and the azygos uvulæ. The levator palati arises from the under surface of the temporal bone, passing downwards and inwards, its fibers spreading out on the posterior surface of the soft palate. The special function of this muscle is to raise the posterior portion of the palate into nearly a horizontal position, thereby bringing it in contact with the posterior wall of the pharynx. The tensor palati is com-

posed of two portions, a vertical and horizontal. The vertical portion arises from the fossa at the base of the internal pterygoid plate, descending it terminates in a tendon that winds around the hamular process, when it again expands into the fibrous covering of the anterior portion of the palate. The function of this compound muscle and aponeurotic tendon is to make the palate tense; or, in other words, to draw or bring its lateral edges out so as to meet the muscles of the pharynx.

The *azygos uvulæ* is situated along the middle line of the velum near the posterior surface. This muscle consists of two narrow slips of pale fibers which arise from the spine of the posterior border of the palate bones and from the contiguous aponeurosis of the velum and *tensor palati*. Its action is to elevate the uvula and by contraction shorten the central part of the soft palate, thereby making the posterior edge of the velum adapt itself more perfectly to the uneven surface of the posterior wall of the pharynx.

I have given you this short and incomplete description of the anatomy of the parts principally involved in cases of congenital cleft that you may the more readily comprehend the condition of the same in the abnormal state. When divided through the center the mechanical action of these muscles is to widen the passage rather than close it. The *tensor* and *levator* having no duty to perform have become dwarfed and consequently inactive. As a proof of this: in the normal condition their action is to raise and make tense the palate in the act of deglutition and articulation; in the abnormal condition in the act of deglutition the two sides of the divided curtain approach each other. This action is produced by the anterior portion of the superior constrictor and the palato-glossus, while the divided fibers of the *azygos* contract upon themselves and shorten the remnants of the two sides of the remaining palate.

In making an appliance I am of the opinion that we have not given the attention we ought to the action of remaining muscles of the pharynx that are not involved in the deformity and on which we must depend to assist us in closing the passage. I refer to the superior constrictor, palato-glossus, and palato-pharyngeus. We are all aware that any of the muscles of the body that are required to do double duty con-

stantly, soon develope in proportion to the tax that is put upon them. This rule holds good with the muscles of the pharynx. The superior constrictors in their efforts to close the passage in articulation approach each other much nearer in the abnormal state than in the normal. The same is true of the remaining muscles.

Fissures of the palate present a variety of forms, varying as their number. There is but one feature of resemblance among all the varieties I have ever met with: The division through the soft parts is always exactly in the center, dividing the azygos muscle, which you remember in the normal state is composed of two parts running parallel with each other and terminating at their posterior extremities in two separate uvulæ. The variations are confined to the hard palate. The most common form to be met with is a division through the center of the arch, leaving about equal parts of the bone on each side. In this variety the vomer also is wanting. Sometimes this variety passes through the alveoli by deviating from the center anteriorly and passing between the lateral and canine teeth. Sometimes the fissure is entirely upon one side, leaving the vomer and opposite side perfect. Again you will find double fissure, leaving the vomer suspended in the center. This variety is usually accompanied by what is called double hair lip. But it is useless to attempt to describe all the different forms and conditions under which they present themselves, for the treatment of all fissures or holes in the hard palate is the same. It must be effected by surgical operation, or by covering the fissure with a plate of some material.

Obdurators of a variety of forms have been in use for many years. The first definite description was by Ambroise Paré, about 1541. His appliances were chiefly confined to perforations of the hard palate. But the idea of constructing an obdurator of one piece when the fissure extended through the soft palate is of comparatively recent date. Dr. Wilhelm Suersen, of Hamburg, was one of the first to recognize the action of the muscles of the pharynx, and to make the fixture of one piece and to depend upon the muscles closing around the appliance to stop the passage to the nares. Probably the most perfect appliance, one that comes nearest perfection in restoring and producing nearly perfect speech, is composed

of two portions—a hard and a soft portion—very nearly imitating nature by extending the sides of the posterior or soft portion nearly to the lateral walls of the pharynx, and requiring but little action of the superior constrictor to meet it and close the passage. The fissure in the hard palate needs to be covered by a plate of some material and attached to the posterior or flexible portion. But an appliance made in this manner has to my mind, and has so proved by experience, many objections. It deteriorates in the mouth gradually but surely, the edges losing their elasticity and curling up, thereby failing to close the passage when required. The consequence is that what the wearer had acquired while it was perfect, he gradually loses as the appliance wears out, and when a new piece is attached the patient commences again with little improvement on the first application.

In view of these facts I have been led to experiment with obdurators made in one piece covering the fissure through the bone and extending nearly to the tuberosity of the atlas. At the posterior edge of the hard portion of the palate the appliance is made to pass above the remnants of the soft palate. From this point its form must partake of the shape of the cavity, or rather the shape the cavity assumes in deglutition. Upon this depends the success of the appliance. If it is ill-shaped, or too small, so that it is impossible for the muscles to reach it, the passage remains unclosed and all sounds in articulation have more or less of the nasal tones. There can be no rule to guide the operator as to the proper size, as the cavity of the pharynx has no fixed dimensions, but on the contrary is as variable as the patients that need to be treated.

Some of the principal reasons why I prefer the hard palate to the flexible one are these :

Being imperishable it always remains the same, and whatever is acquired by its use is retained. Besides it is comparatively inexpensive, and this to most of the unfortunate class that require an appliance of some kind is quite an important matter. As far as my observation goes, the major portion of all applicants wanting relief of this kind are more troubled with fissures, congenital or otherwise, in the pocket-book. So by simplifying the mode of treatment and bringing

it within the reach of all, we are doing the greatest good to the greatest number.

DISCUSSION.

KINGSLEY, N. W.—There is nothing but commendation I can give to Dr. Southwick's paper. He speaks of the origin of cleft palate being in doubt. The origin of all things is in doubt, but it is quite possible to get a little nearer to the primary cause in some cases than in others. Congenital cleft palate originates about the ninth week after pregnancy. (I hear Dr. Southwick saying he has never been there. He was there but he has forgotten it.) [Laughter and applause.] At that period the tissues which he described as forming two points approximating each other are separate. A week or two later they are united. At the ninth or tenth week the fœtus shows a fissure like the fissured palate. If anything occurred to arrest development and that arrest continues even for a short period a congenital cleft palate is the result. You will remember that if the function of development is not performed within the time allotted it, it will remain permanently arrested. If the period passes within which it should have been completed, it never is completed. We see the same law apply in the maturing child. If a child becomes stunted and does not reach the full stature of its inheritance at maturity, at say before twenty or twenty-five years of age, there is no hope or expectation that it ever will. The period of development has passed and will not be resumed. It is the same law applied to a brief period of time which makes permanent the fissure in the palate which is seen at the ninth or tenth week.

It is not at all likely that the actual cause of the arrest of function will ever be known. Any solution of it will be simply guess-work. The mother may tell you: "I remember at that time I saw a big dog open his mouth wide," and she was scared; but you will probably find that those things made no marked impression on her mind at the time, and it is not until after the child is born and the cleft palate is discovered that she refers to it as a cause.

It is probable that the cessation of development which shows itself in cleft palate may have a different existing cause

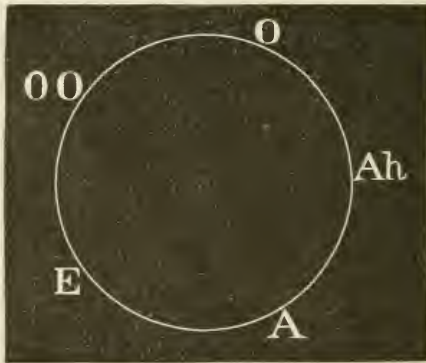
in every instance, and to arrive at or point out such exciting cause and thus forewarn pregnant females would be impossible. The difficulty of obtaining exact testimony after the birth of a cleft-palate infant will forever preclude the possibility of reaching the cause. And so I think it will never be known. The illustration Dr. Southwick drew from the cubs, I don't think could with certainty be charged to the diet. I think the same law that applies to the woman would apply to the tigress and her cubs, but I doubt very much whether it was the matter of food. Again, too, the statement that there are no cleft palates among animals in their natural state is gratuitous. We may say we *believe*, because we have not seen any; but we have not seen all the animals. We don't certainly know about that. We may believe, but belief and knowledge are two things. Another point which was suggested by the paper: He was comparing the results of the elastic artificial velum with those of the hard non-elastic obdurator. I have been more than twenty years trying to know something about it. Up to perhaps a couple of weeks ago I thought the best result I had ever seen in my life was the result of a soft elastic velum. The patient's speech was as absolutely perfect as mine to you at this moment. There was not a trace of defect in any way. Patients wearing such apparatus I have submitted to the most critical tests of experts in elocution without the presence of an artificial palate being suspected. I have seen the same in other cases. Not in all, I assure you. So I had come to feel the elastic velum would produce better results than were possible with any other instrument. But some dozen years ago or so, a gentleman had an elastic velum applied for him, not by myself, but considerable improvement in his speech followed. Some four or five years after that, or eight years ago this summer, he came to me and I told him I believed I could get equally good results by taking the elastic velum away and making a different appliance, and that he would be able to maintain the improvement in speech he had already acquired. I did so and I made the apparatus entirely of gold, and the part that went back in the pharynx was a gold bulb adjusted to conform to the muscular tissues when in action. I had much difficulty in making the bulb so that it should be absolutely tight. Within the last ten days, being out for a moment on

a bright, sunny day, and returning I stepped into the parlor and a gentleman accosted me. The sun was so bright outside that the parlor appeared darkened and I perceived only a stranger. I did not realize that it was any one I had seen before. A short conversation was held which seemed to me of a mysterious character, and on my showing my want of comprehension he gave me his name and referred to his artificial palate. It was my patient of eight years before, as described. I was never more chagrined at a want of recognition, nor dumbfounded, for his speech was absolutely perfect. I was amazed—I, whose ear is used to detecting even slight defects of speech, could discover no defect. There was sitting in my office chair a lady whose daughter had been under my care for the same defect. The daughter had not made the progress she ought to. I said to her, without his knowledge, "Will you kindly sit in the parlor, and within hearing distance? I want you to listen to this gentleman's speech and criticize it." I invited the gentleman into the office for the sole purpose of talking with him. I kept him in conversation five or ten minutes. She, too, was amazed. There was not a trace of any defect indicating there was ever any fault in his articulation. That was the result of an obdurator, where the other was the result of an artificial velum, and so I say that either may produce the best of results, but the results are not always dependant upon the operator but are in many cases dependent upon the peculiarities of the individual which are beyond control, so certain people may never acquire absolute perfection of speech with any instrument. But I had not thought to say as much as this upon this branch of the subject. Dr. Southwick asked me to make some remarks upon his paper, and I had intended to occupy a few moments in calling your attention to some of the physiological peculiarities associated with cleft palates. I doubt very much whether the subject of articulate speech and its mechanism is thoroughly understood by many present. I question whether it is by one in ten. It is a fascinating study to me; a study with much the same charm as that of music to the lover of music.

The physiological and philosophical origin of articulate speech lies in the vibration of the vocal chords which create vibrations or waves in the passing current of air and such

waves reaching the ears of the hearer produce the effect on call sound. Sound and voice may here be used as interchangeable terms. The sound produced by the vocal chords may be one in tone, note and key, but in passing through and out of the mouth it becomes changed by the alterations in the form and size of the buccal cavity. The one note produced when the mouth and the fauces are wide open is the vowel "Ah," and all the other vowel sounds which are heard in any language are but modifications of the sound "Ah," made as above described.

In the English language we have five distinctly marked vowel sounds, but the division of the one note, "Ah," into the five vowels only, is more arbitrary than otherwise. We can illustrate the entire scope and compass of vowel sounds by the accompanying drawing :



By sounding each one of these vowels as named separately and distinctly, beginning with OO and continuing with O, Ah, A, E, and then repeating the same order more rapidly until there becomes one continuous sound, it will be seen that the division into five sections or vowels is entirely arbitrary—a matter of convenience and a concession to unappreciative ears. If our ears were as finely attuned as those of some of the lower animals, this cycle of sound might have fifty divisions or vowels instead of five, but for the general purposes of spoken language distinctions in vowel sounds should be strongly marked, and more than five are not likely to be appreciated. These five sounds, together with interruptions, make up in

their almost infinite combinations the whole of spoken language.

The interruptions, or stops, we call consonants, and were it not for the liberal use of consonants any spoken language would be very limited in its scope and expression.

The effect of the consonant is very simply illustrated by sounding the vowel Ah and stopping the sound by shutting the lips; if the vowel is continued on opening the lips, Ah becomes Bah, and in a similar manner all consonant sounds are produced.

Cleft palate patients are generally able to produce the vowel sounds without difficulty, but many of the consonants are entirely wanting and with such a fissure it is impossible to produce them. Some of the consonants depend solely upon the integrity of the normal palate and others even are more or less affected by its rupture.

In many instances so large a number of consonant sounds are imperfect that the speech becomes absolutely unintelligible. It is then that an artificial palate becomes a most beneficent provision.

BARNES, C.—I would like to know your opinion of the operation of staphyloraphy. I had a patient treated that way and saw him yesterday. I thought the surgeon was going to produce a perfect closure. But the soft palate only is closed and the hard palate bridged by a gold plate.

KINGSLEY, N. W.—It would be hardly complimentary to say that I am annoyed from time to time that real knowledge makes so little progress. More than twenty years ago I discovered that the surgical operation of bringing the sides of the fissured palate together, no matter how perfect the union might be, did not produce perfect speech, the reason being that the newly formed velum is too short to reach the posterior wall of the pharynx, and by thus closing the passage to the nares enable the patient to make the defective consonant sounds. There is a lack of tissue or material in the remnants of the palate when cleft to enable surgery to both bridge the fissure and get sufficient length for proper articulation. The surgical palate is too short *and always will be*. I have preached that doctrine over and over again, and when I could get the ear of a scientific man long enough to thoroughly understand what I meant by it, he was always convinced,

so much so that in every instance where a surgeon had been sewing up cleft palates he recognized the cause of failures and abandoned the operation in every case. Not a distinguished surgeon in New York city will operate for cleft palate, because he does not believe he is doing the patient any good.

The name of a certain dentist in New York city has been mentioned, and I mean no disrespect when I say he has been affecting surgery for some years past and has been airing his knowledge, and is particularly anxious to be distinguished as a great oral surgeon, and has undertaken in several instances the utter and egregious folly of performing a surgical operation when a man more cautious would not touch the case. The result will be failure in every instance. A gentleman once asked me: "When do you think the best time to operate upon a cleft palate? How early in life would you operate?" I replied: "If I were going to perform a surgical operation at all, I would perform it at birth, and would make it transversely between the head and shoulders.

ATKINSON, W. H.—I congratulate this body upon its elevation to the point of speaking things pointedly and calling names. It is the best way of instruction to do it in the spirit I must commend in the last speaker, without the least personal animosity, but with the evident desire to get at the truth. I wish to criticize his last statement in the same spirit. He said he utterly ignored a surgical operation in cases of congenital cleft palate. I want him to recall that statement and set aside the one I am to make, for the benefit of all, in cases where the transverse plate of the palatal bone is nearly entire and the velum sufficient to be united without extraordinary tension. And the palatal plate of the superior maxillary bones entire on both sides, I would advise an operation, not across the throat, so as to put the question beyond dispute and save the child from any future unkindly feeling because of the difference between its appearance and its fellows. But in the early stage, when the jaws would perform their function to prevent the difficulty arising from too long a slit, I would seek at that time to divide at the turn of the arch the hard and soft palate back to the limit of the bone, and by sutures bring the horizontal plate of the superior maxillary bone and portion of the horizontal plate of the palatal bone so as to be brought directly in contact, and get

bony union clear back, and then the union of the soft palate there is no doubt about. By such an operation I hold much benefit would result. I will agree that where the palatal bones are very defective, and the horizontal plate of the maxillary bone is also defective, then it would be doubtful whether good results would follow, and in the main I think Dr. Kingsley has done the world a great service in the ground he has taken, but it is in the experience of every man of reputation that if he is taken at all he is taken as a whole, and if he teaches some things that are not true they are liable without close observation to pass as true and not agree with other sound instruction given. Let us remember we are growing, and as I have heard from the mouths of safe and intelligent witnesses the reluctance on the part of medical men to pursue the treatment of alveolar abscess and diseases of the teeth, let us remember we are but young ourselves, and we do not need to felicitate ourselves upon having made a better record in this direction, to which our attention has been called by the inspiration of our necessities, but we will say we will prove all things and hold fast to that which is good. In surgery of the mouth and palate it has become an axiom that the best operators after having obtained the finest union that could be asked, and seeing the dreadful effect on the speech, they have with one single stroke of the bistoury reproduced the condition again; and seeing the patient was without hope of being benefitted, sent to some one who would make an artificial velum. There is one question I would call the attention of the Society especially to, and that is the time of applying the apparatus. It is known that speech is artificial, being produced by reason of our surroundings, growing out of our social condition. What I want to call attention to is that the habit of speech is a hard thing to get over. If the individual has up to the time been making use of an imperfect apparatus, and has succeeded in getting at something his immediate associates can understand, and you put in an apparatus that will change the vocal tube according to the type of organism inherited from his ancestry and immediate relatives, as nearly like the type as possible, it is quite a business to educate him by the best tutors how to use that apparatus and to imitate the sound others hear that he interprets as identical with the sound he makes.

LONGITUDINAL GROOVES IN TEETH.

By CHARLES E. FRANCIS, D. D. S., M. D. S., New York.

THE labial surfaces of canines and incisors, and the buccal surfaces of bicuspid and molars at their cervical borders, are not unfrequently found denuded of a portion of enamel. The dentine underlying, which is thus exposed, presents peculiarities somewhat varied in the mouths of different individuals. In some cases it is of a semi-cartilaginous character and walled by jagged margins of enamel, chalky in color and texture, and when excavated the decalcified structure peeling out in leathery-layers. In other cases the dentine becomes discolored, is more dense, yet is easily penetrated by sharp cutting instruments. Some teeth exhibit smoothly polished furrows running horizontally across their surfaces near the festoon of the gum, as if cut with a file or disc. In such cases the dentine is usually dense and difficult to cut, and the adjacent enamel retains its normal aspect.

Instances occur where these grooves extend far beyond the territorial border of enamel, and deep into the cementum, which is left exposed by the receding gum and absorbed margins of alveolar process.

Occasionally the gums present the appearance of having been worn away by friction—looking compact and exhibiting a healthful glow, while in other cases they are purple and tumid, extending forward or overhanging the cervical line of each groove.

While in many instances these furrows are highly polished and dense, as if the result of much friction, they are sometimes found to be badly stained, suggesting habitual neglect. The teeth of both arches are subject to these lesions and often become seriously injured or quite destroyed.

The destruction of tooth structure is not confined to the adult teeth, but may occur at an early age, the disease first manifesting itself when the tooth brush is used, or by a touch,

as with the finger nail near the margin of the gum. Careful examination reveals, at first, a small defect or apparent abrasion at the periphery of the enamel.

Patients ask the cause of this sensitiveness or why these grooves appear? The replies they receive usually accord with the degree of illumination parties thus interrogated possess, and are sometimes rather vague. Opinions concerning the cause of this trouble are somewhat at variance, and text books give it little light. It is said to be the result of chemical action, either of an acid or an alkali. It is also attributed to mechanical abrasion, or too much rubbing with stiff brushes and coarse dentifrices. This latter idea serves as an excuse with some people for suffering their teeth to become loaded with calculus and other mischievous deposits.

Teeth are found grooved, not only on their labial and buccal surfaces, but sometimes are nearly or quite girdled, and the furrows, not unfrequently, are smoothly polished, even in places where a tooth brush would hardly reach—certainly with too little force to polish such channels. It would seem, however, as if surfaces so smooth and dense were marked evidences of attrition, and it is also reasonable to presume that the disturbance was first produced by chemical agency.

The mucoid secretions exuding from the minute follicles around the teeth collect and find lodgment just without the margin of the mucous membrane on their cervical borders. These deposits combine more or less with extraneous accumulations, and being subjected to the heated temperature of the oral cavity will in due time undergo fermentation. Acids thus generated and in direct contact with the enamel hour after hour for weeks, months and years, would naturally tend to impair its integrity, and especially so in low-toned teeth. Parts thus eroded, if exposed to much friction by the use of a brush, would probably become polished; and perhaps even the ordinary movements of the lips or tongue, or the comminution of tough and fibrous food in the process of mastication, would exhibit similar results.

So, Mr. President, it seems to me that there are two agencies at work to produce such conditions as I have attempted to describe.

DISCUSSION.

COOK, C. D.—I would ask the speaker what he would have us understand in this connection by “low-toned” teeth? I think if we get correctly at the speaker’s interpretation of the words he uses it will give us a better chance to discuss the question intelligently.

FRANCIS, C. E.—Teeth that see very little decay. Many patients come to us with teeth dense, hard. Low-toned teeth are teeth deficient in phosphate of lime. We say they are not over and above hard—not thoroughly calcified.

BÖDECKER, C. F. W.—I have, within the last year or two, taken a great deal of interest in this class of teeth, and have to differ somewhat from Dr. Francis. I have never been able to find any extreme acid or alkaline reaction in the mouth of such patients. On the contrary, all the saliva I have tested in these mouths has been neutral, and I think up to this time nobody knows what the real cause of the occurrence is, or what its nature. I should be only too happy to be in possession of some specimens which would demonstrate the disease in question, but unfortunately I am not. On the other hand, where the necks of the teeth are soft and exposed and the gums inflamed, there I have always found an acid reaction. Therefore this condition I believe to be due to acids, but the other condition I have never seen as occurring from acid.

COOK, C. D.—That condition of the tooth described by the essayist is evidently quite distinct from what we so often see in a middle aged person, or a person of more advanced life, where the constitution of the individual and general health have from the earliest period been perfect—as nearly so as we can have perfection. The teeth are exceedingly dense, structure very hard, and across the labial and buccal surfaces we find grooves, more or less deep according to the length of time it has gone on, and increasing year by year. That is quite distinct from that which is alluded to as coming under the head of soft or low-toned teeth, and that in my judgment is the disease more difficult to combat than that which arises from “low tone.”

AMES, F. L.—I would like to call Dr. Atkinson’s attention to a case which came into his hands a number of years ago. It

was that of a dentist, Dr. Sheldon, of Hudson, who was a graduate of the Philadelphia Dental College. Dr. Sheldon I think had the finest set of teeth I ever saw. They represented solid mason-work, so to speak. Every tooth in the upper and lower jaw occluded perfectly, and the formation of the teeth from the margin of the gum to the cutting edge was square and compact. Dr. Sheldon felt very proud of his teeth. They were thick, strong-looking teeth, yellowish-grey. He had some disturbance of the stomach, some difficulty in digestion, and his physician recommended the use of lemons, and Dr. Sheldon began the use of lemons, lemon suckage, and consumed two or three lemons a day. The difficulty with his stomach improved, but about six months after he had commenced the use of the fruit he discovered that his teeth were presenting a very peculiar appearance—these vertical and horizontal grooves making their appearance, larger at the center of the teeth than at the necks. The two central incisors for nearly two-thirds of their length became denuded. He went to Dr. Atkinson for treatment, and after undergoing that treatment he came home, when I saw his teeth, which were so much improved that he felt greatly encouraged by what had been done. Unfortunately Dr. Sheldon didn't live long enough that the result of the operation could be determined, whether it was permanent or not. I don't know that Dr. Atkinson can recall the case, but that is the fact. It was evidently due to acid.

ATKINSON, W. H.—I don't recollect the case. How long ago?

AMES, F. L.—It must be twelve years ago.

ATKINSON, W. H.—I am sixty years old—a fellow can't remember everything.

LEWIS, J.—I have seen two cases, very marked cases, of individuals where they have been treated for nervous diseases; one was a young man and the other a young lady, whom they had fed on bromide of potassium for nervous complaints, and the teeth were entirely destroyed near the free margin of the gum on both upper and lower jaw.

BÖDECKER, C. F. W.—Has the doctor tested the condition of the saliva?

LEWIS, J.—I did not test it. They merely came under my observation.

ON CERTAIN MICROSCOPIC ELEMENTS IN PULP-
LESS AND GUM-DENUDED TEETH, IN THEIR
RELATIONS TO THE FILLING OF ROOTS
AND THE RE-ATTACHMENT
OF THE GUM-TISSUE.

By J. EDW. LINE, D. D. S., M. D. S., Rochester.

SINCE the discovery by Spooner that arsenious acid properly applied to the tooth-pulp would devitalize that organ, the filling of root-canals has occupied a somewhat conspicuous place in dental theory and practice. The discovery in question is said by some to mark an epoch in the history of our calling, being regarded as the dividing line between old or ancient dentistry and modern or new. But if this discovery had ended simply in the destruction of the tooth-pulp, little would have been gained beyond the cure of tooth-ache without extraction and consequent loss of the tooth; and very much would have been lost in the rapid breaking down of the now poorly nourished tooth, the destruction of the osseous support of neighboring teeth, the drainage of the system by abscesses, and the poisoning of the oral secretions—and indirectly of the whole body—by the products of these outlets of badness. Happily it did not end here. The devitalization of the tooth-pulp was followed by its removal, whole or in part, and the more or less complete filling of the root canal, after or without medication, until the perfect filling of this cavity came to be regarded as a fine art.

The material of root-filling is not so important as formerly; the method of much more importance. Some were content to fill with cotton saturated with creosote or carbolic acid; some with cotton whose meshes had been filled with oxychloride of zinc; some with this only or a similar plastic; some with gutta-percha; some with metals, as lead, tin, or

gold, the latter ribbon-like or in roll-form, or wire, or some combination of the three. It was agreed to by good and bad operators alike that roots should be filled; that they should be filled to the apex: not beyond, for that would irritate the tissues of the alveolus and give rise to tenderness to touch, or possibly to inflammation and its various endings; not short of the apex, for thus would be left a pocket to hold shreds of pulp that might soon end in death, or to retain the juices of the neighboring tissues till time and other circumstances favored their decomposition, when would result the many too well known ill effects.

The expert at root-filling is confronted with a case of say soreness of an incisor. The slight off-color and other circumstances indicate death of the pulp. Casual examination reveals a gold filling on one side. Our expert now begins his quiz: "I see this tooth is filled; when was it done?" "Ten years ago." "By whom?" "Dr. Blank." "An excellent piece of work. Did he destroy the pulp?" "Yes." "And fill the root?" "Yes." Our expert is now suspicious of a defective root-filling. Dr. Blank must have filled short of the end of the root, or beyond that point, or if just to the end his materials must have been poorly selected and as poorly packed. He then removes the filling from the cavity of decay and drills out the root-filling, or because of the worthlessness of the tooth's associates, or its own without them, extracts it and finds a root-filling as solid and as perfectly made as possible with soft gold foil packed by hand or by automatic mallet—a root-filling that goes just to, not beyond nor short of, the end. He pronounces it a perfect piece of work, and as he believes that roots perfectly filled never give trouble, he is puzzled. And well he may be, for within an hour of the operation in question he is called upon to extract, preparatory to the introduction of a plate, four pulpless incisors imbedded in healthy gums and process. On splitting these teeth for examination, as is his custom, he finds incisor A to contain the ideal root-filling, satisfactory in every particular even to the odor of carbolic acid. Incisor B also contains a root-filling, but this falls short of the end, and yet there are no signs of pericemental trouble whatever. Incisor C is also filled, but in this the filling extends beyond the end of the root a full quarter of an inch. But there is nothing

more out of the way in this than in cases A and B. Incisor D contains no filling at all, and as in the three already mentioned, indications of disturbance of whatever kind at or near the apex of the root are wholly absent. If his reasoning is confined to these four teeth he concludes that a defective root-filling, or no filling at all, is just as good as the best. Or he may conclude that there is something beyond the antiseptically treated and perfectly mechanically filled root that has hitherto escaped his observation. And in this he is more than likely to be right; for while the making of the root thoroughly antiseptic and the filling of it in a mechanically perfect manner are to be desired, even if not necessary to success, there are other things that sooner or later undo the best that can be done while roots remain in their places in the jaw. What these things are will appear further on.

Whether the result of purely mechanical causes, as the tooth-brush or an ill-fitting partial plate; or the attendant or follower of causes pathological, as a low inflammatory, a suppurative or necrotic condition, traceable to deposits of tarter or constitutional peculiarities, the stripping of the teeth of their gum-tissue means death to the more superficial and exposed portions. It has been claimed time and again, publicly by the best and in a quiet way by some of the worst men in the profession, that the reproduction of the gum-tissue and its attachment to the tooth, or its attachment and the re-attachment of tissue already on the ground, are matters of easy accomplishment, requiring merely time, patience and skill. The best men above mentioned do this, or claim to do it, by surgical means chiefly; while others, the baser or basest extremists, rely on the application of medicaments known to domestic medicine and prescribed to innocents ever since coster-mongers ceased to jump upon their mothers. We are more than willing to admit the ability of any one of fair skill in other things, having a reasonably healthful and consequently hopeful case, to reproduce more or less gum-tissue, and by no other means than time, skill and a well-formed lancet. On the other hand, we are but sparingly willing to admit that in the treatment of pyorrhœa alveolaris, or Riggs' disease, some are able not only to reproduce this tissue, but also to effect its union with diseased and gum-denuded teeth. We are thus "but

sparingly willing" because we believe in many of these men, in their ability, their honesty, to report faithfully what they see, or think they see; and yet it is no more than fair that something more than mere statement, or say-so,—something approaching demonstration should make its appearance, if only to bear these worthies out in what they have said in meeting and published in the journals. We do not say that the re-attachment of the gum-tissue to the tooth is impossible of accomplishment, that it cannot be done, that it has not been done; but we do say that there are certain things and conditions of things in the way that make the operation difficult and success doubtful. What these things are, and they do not differ in any essential from those hinted at in our remarks on root-filling, will be stated when we have considered for a moment the minute anatomy of the human tooth, which we now proceed to do.

According to the every-day notion of tooth-structure, a tooth is a mass of inorganic matter traversed in given directions by matter not inorganic, as in enamel; and in places and at times organized, as in dentine and cement. According to recent views, some of which are destined to rapidly and effectively supersede many now current, a tooth is an organized body having a lace- or mesh-like structure, the meshes being filled in with inorganic matter, principally salts of lime. If from such a body a transverse section be cut just above the highest point of the enamel, and prepared for microscopical examination, there will be seen radiating from just within the pulp cavity numerous well-defined, nucleated cells, closely connected with each other by so-called lateral processes and sending one or more long, slender processes, or soft-fibers of Tomes, toward, into and through the dentinal tubuli. If one of these processes or fibers be examined, lateral or sub-processes will be seen running towards and to neighboring processes, and by means of which all primary processes or fibers are bound together. If followed straight on this primary process, or soft fiber of Tomes, will be seen to unite directly with one or more processes of the cell of a cemental lacuna, or indirectly by processes as fine as those sent off from the sides. Following the process of the cemental cell we pass through the nucleus or nuclei, then through one of its peripheral processes, and finally through

the mesh-like structure of other cells to the peridental membrane. This gives us a string of tissue connecting the pulp through dentine and cement with the membrane lining the alveolus; and this string of tissue will exhibit two or more nuclei or centers of assimilation, development, and (in early tooth history) reproduction—the three cardinal characteristics of organization, no matter where found. Such being the anatomy of this part of the tooth, of course roughly stated, we are prepared to go further and discover if possible some of the changes that may occur, and in occurring bring to naught all that has been done and suffered by operator and patient respectively.

If the pulp of a tooth die or be destroyed, the first thing is to remove the remains, cleanse the root to the apex, render it antiseptic so far as may be, and fill well from the end down. Suppose this done and the root does well for say ten years, as in our expert's case, and then, without apparent cause or provocation, becomes tender, aches, and after a few days develops an alveolar abscess. To what shall the failure be attributed? To mechanical interference of any kind? To accident? Neither of these. To the operator? No, for we know that he did his work well. What then? The answer is short: Death and decomposition of the contents of the dentinal tubuli, whole or in part, and the transmission of the irritation to and through the cemental cells to the peridental membrane, giving rise to inflammation and ending in abscess. It was at or near the pulp cavity that the trouble began, and it is here that a section from a tooth of the character described shows a difference in color, in the contents of the tubuli, in refractive power; and it is here that we find the line of demarkation, that line that sets off the living from the dead—what may be called the dead line. It existed at the time of the preparation of the root for filling. On one side was living tissue, on the other more or less dead tissue, antiseptically soaked. But at the time in question death took a fresh start and set the line deeper in the dentine, or even in the cement close to the peridental membrane, and with the result stated. Without knowing why, attempts have been made to defer or prevent decomposition. The habit some dentists have of reaming roots from beginning to end is a good one, for by this means the dead contents of

the inner ends of the tubuli and the diseased intertubular tissue are removed; but even then the dead line may be a little beyond the reamed portion—just far enough to save a little dead material for future mischief.

Again, in the case of a gum-denuded tooth, we find dead tissue near the surface of the root and, in some cases, so far into the cementum as to involve the contents of the lacunæ. This being the case what is to bridge the chasm between the gums, old or recently formed, and the contents of the lacunæ or (in the neck) the tubuli? It is claimed that the root should be scraped, cut away, excised, and the gum lacerated, and that then there will occur an exudation of plastic material which, undergoing organization, will re-establish nutritive and other relations between the tooth and its environment. Where this happens circumstances must be favorable indeed. That it does not, cannot, happen often is apparent from the fact that a broad dead line, a chasm must be crossed; and living tissue separated by such lowly organized structures as cement and dentine, and a thick film of mixed oral secretion, can rarely, if ever, come in contact—and union without contact of some kind and some thing is simply impossible.

In presenting these thoughts it is not with the intention of excusing in any way any man for doing questionable work, but rather to put him on his guard against those who, in the face of the nature of things, claim too much; and also to furnish him with a few facts in regard to things always beyond his control and liable at any time to undo what has cost him long hours of hard and honest labor.

DISCUSSION.

BÖDECKER, C. F. W.—I wish to say a few words with regard to the minute anatomy of the tooth. Dr. Line stated that the outer or peripheral surface of the pulp is covered by the odontoblast layer. This is indeed so; but he also said there was connection directly with the Tomes fiber—that the Tomes fiber springs directly from one end of the odontoblast. I have never been able to see this, and one who is accustomed to microscopical work who will

take the trouble to make a section thin enough, and examine it with a power of at least 500 or 800, will be able to see very clearly that the Tomes fiber does not arise from the end of the odontoblast, but between them. Whenever you come across a fiber which appears as though arising from the end of the odontoblast, if you will very carefully use the fine adjustment you will find it to come from a layer below. The Tomes fibers, as I have observed, originate directly from the lateral off-shoot to which they are connected, and to these again you may trace the ends of the non-medullated nerve fibers of the pulp. The doctor referred to the use of arsenious acid. I very much regret that I have been prevented by sickness this winter, as I would have presented a somewhat exhaustive paper to this Society on the action of arsenious acid. However, this has not been completed. Thus far I think the action of arsenious acid is not fully understood by any one, not even myself. I have experimented over two years, and sometimes it looked as though I had arrived at definite conclusions; but it seemed again and again that arsenious acid acted in this way, and sometimes in another. But the minute action of arsenious acid is an extremely difficult thing to find out. I am experimenting with three or four cases which are not yet completed, which promise some results, and if I have more time during the summer I will follow it up closely. Dr. Line gave us his views about the irritation from root-fillings. Gentlemen, I am of the opinion that metal root-fillings such as amalgam, or gold, or even tin, are injurious to any root. In the first place they are too good conductors of thermal changes, and in the second place they do not perfectly seal up the dental canaliculi. The most perfect root-filling that I have employed is a solution of gutta-percha in chloroform. Previous to this I had used oxychloride of zinc, and the last couple of years I have been in the habit of using a solution of iodoform in ether, and this in alveolar abscess has the most remarkable action I have ever seen. Dr. Line said that pyorrhæa alveolaris, or Riggs' disease, could not be cured. Certainly, in the cases where the pulp of the tooth is dead, I think it is a failure every time; but as long as the pulp is alive I think there is a very fair chance of suc-

cess. About ten years ago, when Dr. Atkinson announced his method of treatment, a patient came to me with the four lower incisors very loose and a good deal of tartar on them, and asked: "What can you do?" I told him, nothing but clean and let alone: that they would probably drop out and that would be the end of it. He said: "I don't want to lose my teeth. I want you to do something with them. I will give you a few months' time to think about it, but you must then do something with them." After eighteen months the gentleman came back with the teeth in a worse condition than before. He repeated his demand. One tooth was so loose that he was afraid when he used it that it might drop out. I cleaned them again and used aromatic sulphuric acid. In cleaning one of the centrals it almost fell over. I took an impression and made a support out of a couple of gold wires which would keep the tooth in position, and I continued the treatment every other day or every third day, and in the course of about three months those teeth were as tight as any teeth in his mouth. That gentleman I saw again about six or eight months ago, and those teeth are just as firm to-day as any one of the teeth of the gentlemen in this room.

ELMENDORF, M. E.—Did you use anything besides the aromatic sulphuric acid?

BÖDECKER, C. F. W.—At that time I did not, but now I have fortunately found several other substances which are excellent. There is a preparation of coal tar called tartarate of chinoline. It is an astringent as well as a powerful antiseptic, and it is the best I have ever tried.

RICH, J. B.—Do you mean to say that the teeth were absolutely loose?

BÖDECKER, C. F. W.—They were absolutely loose.

RICH, J. B.—From the periosteum?

BÖDECKER, C. F. W.—I have now several other patients of the same character. If you wish to see them—

RICH, J. B.—You say the teeth were very loose, and I want to ask the question, Mr. President, of Dr. Bödecker, whether the periosteum was separated from those teeth at the time he commenced treatment?

BÖDECKER, C. F. W.—They were certainly separated at the neck. They were entirely loose.

RICH, J. B.—When those teeth became firm was it by the adhesion of the periostem to the tooth again?

BÖDECKER, C. F. W.—That is what I believe.

RICH, J. B.—Do you *know* whether it was or not? Did you make an examination?

BÖDECKER, C. F. W.—The gum has grown up tight to the tooth and consequently the periosteum?

RICH, J. B.—One would suppose that in a case so remarkable as this, a person who had been so successful in treating teeth under that peculiar condition, where they were very loose in the mouth and the periosteum entirely separated, would be very careful to ascertain whether that periosteum had become attached to the root again; because that is a question that with a great many men who are eminent in our midst, has been a strong point in dispute, whether that ever occurs or not. So far as I am concerned I am free to say I have never seen one single instance, where it was authenticated, where the periosteum became attached to the root and the tooth afterwards became firm.

BÖDECKER, C. F. W.—If Dr. Rich will come to the first clinic of the First District Dental Society, next month, I will have a case.

RICH, J. B.—I have seen cases, but never where this adhesion of the periosteum was identified—where the periosteum was thoroughly separated from the tooth, causing it to become loose, and where there was loss of the alveolus and the tooth afterwards became firm and solid.

ABBOTT, F.—That brings to mind one thing I wish to say, and that is, I have always fought the assertion that periosteum, when once destroyed by tartar, became restored. I had a case two or three months ago however which has shaken my position considerably. I examined it very carefully about a month after having thoroughly removed the tartar for the purpose of ascertaining whether it did occur (as a change had taken place), and to my astonishment I was thoroughly convinced that it had reestablished itself, and reattached itself to the tooth. So that where a month before I could put an instrument one-fourth of an inch between the gum and the tooth nearly all around the tooth, I could then find no detached point with the finest instrument I had at hand. The gum was in its original position. It was not denuded

nor atrophied in the least. So I am convinced that restoration of the periosteum may be effected in some cases. It may be in the manner of treatment. It may be in the peculiar constitution of the patient. Our friend Dr. Atkinson has maintained for many years that the restoration of this membrane was a simple proceeding and often accomplished, which position I have as positively denied. Now I am ready to admit that it does occur once in a while. This is the only case, however, that I have ever seen. In reference to Dr. Line's paper, Dr. Bödecker has stated that any one who examined teeth carefully, who saw a "Tomes fiber," would readily observe it passing between the two odontoblasts as they presented themselves at the periphery of the pulp. I have seen it over and over again. The outer portions of the odontoblasts seem to be attached to and form a part of the fiber as it passes on into the dentine. In reference to the organic portion of the tooth after the death of the pulp; here we have an element that is ready to give us trouble at any moment. Dr. Line terms it very properly, a poison. It is a poison if putrifying organic tissue is poison. This we find directly in connection with living organic tissue. I have called the attention of the profession in New York on several occasions to this fact, and have spoken of it as the possible cause of periostial irritation. When Dr. Jones or Smith or Brown has done a piece of work we know they have done it well. If a pulp canal has been treated and filled we are satisfied that it has been done properly, and yet we find in the cases treated by these gentlemen periosteal irritation, starting up, frequently, without any explainable cause. It seems plain to me that under some circumstances there is a certain irritation of the living portion where it joins the dead and putrifying, by absorbing a portion of it, or something from it, by which irritation is conveyed through the cementum to the periosteum and thus periostitis is set up.

RICH, J. B.—I don't ask the question to be captious, but because it is a matter of great importance to the whole profession to know that as an absolute fact. From my standpoint I should not believe except convinced by my own eyes and my own senses. There is no proof except my own word of a very careful investigation of the treatment by which this periosteum was attached and what it was attached to. Then

I should want to know for the benefit of my profession, so we might combat this most dangerous of all diseases that causes the destruction of so many splendid teeth, and I should want to place before the profession the means by which this miracle was performed, for I would regard it as a miracle even if I saw it. I have seen it asserted. I say why don't you show it to somebody before you begin the treatment, because when you assert a thing that is doubtful very few people believe unless you allow several people to see. I would not believe the authority of any man unless I saw it in cases of that kind, for it has been against the teachings of my whole professional life, and I have had a great many cases presented to me. I say I want to see this man, and why don't you give publicity to the treatment. Therefore it was not in a captious spirit I asked this, but only because I want to know the facts; but I will go any distance where I can see both stages of the case. I want to see before the treatment commences, where I can examine for myself, and then I want to see it fastened when it is completed—when we can make an investigation and see if it is attached.

ATKINSON, W. H.—I suppose I may say this is my fight. I claim to have no other object in stating my perception of the facts than the illumination of men who are in the condition I once was. When we have been blessed ourselves, we want the whole world to be converted at once. While we are warm with the perception of the definiteness and usefulness of the truth that has been revealed to our consciousness we are all awake and come to the husking-bee. I know what I am saying and have for years. I know what it is to be as earnest against the position as I am in the position I take now, and I know one is the position of light and the other is that of darkness. The fact is that every revelation of truth to the human mind has to come through illumination of our obscurity to become light. Where is the difficulty? It is that men merely skim over the subject of embryonal conformation of tissue and do not understand the ultimate physiology by which the tissues are repaired under the demand of typical proportion. I have said time and time again reproduction of tissues had to pass through the same stages and steps by the guidance of typical presence as it did in original production. Stick a pin there and hold your attention to the

point. It is this: They have supposed periosteum once formed must be nourished intact, all its elements being continually fed, and if they were destroyed they could not be reproduced. If they studied the first line of the first letter of the alphabet that constitutes the A of histology, they would not make such a blunder. Every reproduction conforms to the plan of building up a new tissue upon the point in protoplasm that has been called a "vacuole," that is exactly like the original one in the development of the chick in the egg of the hen, or the human foetus in the human egg in utero, that this metamorphosis takes place in the exudate of blood-plasm which is divided into the tissues of the body to complete the functioning machine. We know scar-tissue is built upon the type of the original connective tissue, at the point where the demand of this innocent thing we call type directs, so that the scar-tissue may be first-class. This is exemplified in a case that occurred some fifteen years since, in which new alveolar processes were obtained where the old were necrosed and taken from the under jaw of a young lady, a student in Packer Institute in Brooklyn. The dead processes were removed through slits in the swollen and inflamed gums, from the second molar on the right side to the second molar of the left side. The right inferior second bicuspid was extracted before the case was seen. Three of the teeth had dead pulps in them; but this did not preclude the formation of perfect processes and gums to the normal necks of the teeth, incisors, canines, bicuspid and one molar. The pulpless teeth are very dark, but the attachment of the gums and the alveolar processes are indistinguishable from the originals. That individual is still living and the case has been reported a number of times before this body and others. Yet some men, claiming to be intelligent students of histology and pathology, persistently deny these facts and demand that we shall esteem their judgment at such a high value as to force us to seek out and give them opportunity to see every case we have. These are the men who stand with their back to the light and seeing their own shadow, at which they persistently look, say: "By God, it is dark!" This is a question of too much importance to the human family and to us as agents of the blessed intent, to follow such darkness as brought us into this difficulty and has made by the force of circum-

stances this noble body, before whom I stand with trembling earnestness, with tender affection and fearful as a fawn lest the tusks of the wild boar should rip out our bowels and make here an example of reproduction after the manner of the fakirs of Egypt. I want to speak to the points at issue and thank Dr. Line for his paper. If men were able to digest that paper we would not have such false diagnosis as we have. If men knew what they were about and what their highest interest is, they would get down on their knees, if need be, and examine with earnestness and faithfulness the questions which are involved. And first, the doctor has made in the paper one grand mistake. He has assumed conditions that are impossible to the man who will go a little further than he has gone. He speaks of the action taking place in a perfectly sealed chamber, which is impossible. I question all the surgery in war and other places; I have seen magnificent examples this day in the museum, where bullets had been driven into the human body and encysted; but where they were driven and encysted all but a single fragment, which by reason of cutting through the bone, a degree of inflammation had been set up and reproduction by reason of the returning of the tissue to an embryonic condition. These patients lived a number of years and died of disease. We can get a tooth encysted whether the root is filled or not. That was told us years ago by our strong-headed Scotch friend, Watt, of Ohio. He didn't care whether the pulp-chamber was filled if the end was properly encysted so as to cut off the diseased impact of energy. I can show cases that will verify the testimony to any person whose mind is in a teachable condition. I have a very cultured lady who had been in the care of a dentist who loved her as much as he could love a patient, and who said, when she insisted on not having the teeth out: "I will send you to a man who will do for you the best that can be done." The teeth were the first left inferior second molar, first molar and both bicuspids on the right side, and three molars on the left side below, and all these teeth were loose and their sockets were oozing pus all the time. I can give the name and letter of introduction, if need be, of the dentist, whom the lady reports as saying: "No man can save the teeth; but I will send you to a crazy

man, who will take you in his lap and kiss you and you will think he is almost divine, and you will come back to me in two or three years for artificial teeth." That is the kind of treatment I get from my best friends and a man whom I tried to take from a shoemaker's bench to be a dentist. All the upper back teeth of one side were gone except one bicuspid. She was wearing black rubber with gold on the face of it to protect the gum. The teeth were loose and pus-discharging all around. It will be four years next November since that case came into my hands with the mouth raw. I took care of it by simple treatment, beginning by tying the teeth together with floss silk, two or three lines of it, by reason of their being so frail.

RICH, J. B.—I rise to a point of order and that is, there is a great deal of the gentleman's remarks that is personal and does not enter into discussion before a scientific body.

STRAW, President—The speaker will confine himself to the subject under discussion.

ATKINSON, W. H.—When I aspire to put forth the truth which has cost me an earnest life-time to formulate, personality is a little matter, and an individual who has the truth within him is above or below misrepresentation, and you can use that to suit yourselves. But I am in such earnest to get this which has been revealed to me into the minds of men who can bless the world if they will follow the lead I am following. The covered mucus surface instead of discharging mucus was discharging pus and as raw as if denuded of the epithelium. I don't say the whole epithelium was gone, for then you could not get complete reproduction. Three weeks she was in my care and I put her in a Reese-metal-plate which is adapted to the conductivity of the tissues. And she has the third plate in three years by reason of the shrinkage of the parts. The treatment was cleaning off the foreign matter as far as I could find it, and then drying the tissues out as well as possible and, with a little bit of wood dipped into aromatic sulphuric acid, full strength, drop in until every one of the little pockets were filled. Do it but once and I will leave you to your convictions; afterwards you will watch it day by day. If it heals by first intention don't over-meddle. There is as much mischief done by over-treatment as under-treatment, and I guess more.

How? When nature has set the machinery to work and poured out pabulum inside this new pocket that is to be formed into the periosteum and other issues of the locality we should simply keep it clean. There is not a bit of pus in that lady's mouth except at the festoon of the gum at the mesial side of the right central incisor. The upper ones have a good calcified reproduction of the alveolar process, not a particle of discharge and no unhealthy appearance. I touched with salicylic acid (saturated solution in alcohol). That coagulates the albumen on the outside so as to make the equivalent of the *decidua reflexa* in gestation and reproduction. That and other cases can be seen. The only secret is to keep foreign matter away and form the pocket so that the lips and tongue and food cannot come in contact with the new growth. When it is there the work is done. It does require to see whether you have removed all the débris and mischief, because here and there there may be a little spot that has been missed. If you are in earnest you will watch with an interest above the accumulation of dollars and cents.

REMARKS ON ARTIFICIAL CROWNS.

By N. W. KINGSLEY, D. D. S., M. D. S., New York.

IT has been recognized as a psychological fact for generations among play-goers and play-actors that when an audience has been worked up to such a pitch of excitement by listening to a tragedy that every one wanted to kill somebody, the play must be followed with something of a lighter character and the audience relieved from the mental strain or blood will be shed.

I shall endeavor to relieve your minds from the strain we have undergone and will give you something less profound. The President some time since requested me to talk upon some topic, and sent me a list of questions from which to choose a subject. In that list was in one sentence, "Artificial Crowns and the Application of Screws." I replied, saying, "that inasmuch as I have been working all day long on artificial crowns and the application of screws, I could talk on that subject easier than on any other." I shall not say anything about pivot teeth. Dr. How, who follows me, will present to you a somewhat new plan for the insertion of pivot teeth.

The artificial crowns I shall speak of are gold crowns and not porcelain. I can explain my methods better by describing a case that came before me recently. A young lady some seventeen years of age, whose bicuspid and molars upon the lower jaw, and to a more limited extent the same upon the upper jaw, had erupted without any enamel and she came to my hands, showing stumps of the teeth a little above the gum, with only remnants of crowns, but with live pulps in each case. There was no inflammation, no disease and no exposure of pulp. What there was left of the teeth was sound excepting that slightly softened condition of the surface which you have seen in teeth which had no enamel upon them. She had been advised to have these

extracted and have some artificial teeth. She had consulted many dentists on the subject in various parts of the country. The decision was extraction and artificial teeth. She went into the hands of a distinguished New York surgeon, as the family had been under his care from time to time when they visited New York, and they consulted him in regard to the child's health, as she was evidently not in good condition. Her digestion was imperfect, her health was impaired, and this surgeon charged the fault upon the want of masticating ability in her mouth. She was endeavoring to eat with the front teeth only, nipping the food with them. When she closed the back teeth together such upper teeth as were fully developed shut down on the tops of the undeveloped crowns below, but in her masticating process she brought only the front teeth together. Finding every one of these stumps in good and healthy condition, it seemed a wicked thing to extract them, and so I undertook to crown them. I commenced by first fitting a narrow band accurately around each one of these stumps under the free margin of the gum. I never took more pains to do a thing with mathematical accuracy than fitting on the ferules or bands, and when each one was fitted, wax was placed on the top and a bite taken as the incisor teeth came together as she was in the habit of using them in mastication. I proceeded to carve in wax a model of a crown specially adapted to each stump.

BARRETT, W. C.—Was the occlusion of the incisor teeth as described natural or acquired?

KINGSLEY, N. W.—I think undoubtedly acquired, but I was obliged to take advantage of it or else I could not build up the crowns. Some might question my judgment, but there was no alternative. In carving the wax model of each tooth an effort was made to imitate artistically such a natural tooth as belonged there. Plaster models and zinc dies followed, and gold crowns were made of which the ferules or bands first fitted formed a part. Coin gold about No. 30 plate gauge being used in their construction. The adjustment of the crowns was as follows: Each crown was filled with oxyphosphate of zinc in a plastic condition and quickly forced to its place, a small opening being made in the grinding surface to allow the surplus cement to ooze out. Then on each side of both buccal and lingual surfaces a horizontal

screw passed through the crown into the solid structure of the tooth, close to the margin of the gum in each case. No screws were put in vertically, nor was any risk run of touching the pulp. I could not obtain so firm a hold with a vertical screw in any part of the crown as I could with a much shorter horizontal screw, as you can readily understand. A very little depression horizontally would hold the crown firmly. The result was a complete success mechanically, and a complete success so far as the comfort of the young lady was concerned. This occurred two or three months ago, and I have seen her within a few days and she has had no trouble. She is masticating upon the crowns and her physician says she has changed vastly for the better in every respect. She has certainly gained much in weight.

I have every reason to believe that I have preserved those teeth for a life-time. There certainly can be no reasonable probability of decay in those stumps with the accuracy with which the crowns were fitted under the margin of the gum and with the certainty with which they are fastened there, the probability is they will remain permanently, and the improbability of any decay, why may we not regard them better, as far as utility is concerned, than any teeth with well developed enamel upon them, knowing the liability of such teeth to decay? A few words in relation to screws. I have used screws frequently in teeth horizontally. Especially is a transverse screw of value in securing contour fillings, and that, too, without special reference to the material used in filling, except that when I am using an amalgam I prefer to use a platina screw.

I will describe for illustration a lower bicuspid tooth in which the grinding end is gone one-half the length of the crown, pulp cavity open and decayed and the interior of the pulp canal to some extent enlarged by decay. There is no inflammation nor tendency to suppuration, or if there has been you have cured it. In such case put a transverse screw through the body of the tooth and above the bottom of the cavity. If you fill with amalgam, use a screw made of platina wire. I should hesitate about filling so weak a tooth as I have described with gold—the pressure necessary for condensation would strain the walls and do more harm than good. But with whatever material is used a screw going

through from side to side will hold the filling securely. I am using screws in this way to a considerable extent. The size of the wire is about No. 20 of the plate gauge. I generally use the alloyed platina and iridium wire, because it is stiffer and I get a better thread. You can make it as long as you choose and cut off such length as you wish when the time comes to use them. In putting them in take the wire which has the thread, and with a hammer and anvil flatten the end and cut at such lengths as required. The screw-driver will be the reverse of the ordinary screw-driver. An old broken excavator of sufficient thickness with a slot across the end to receive the flattened end of the screw will enable you to put it in rapidly. If you have any difficulty in starting it to its place, when far back in the mouth, a little bit of sealing-wax or shellac will set the screw in the driver and enable you to insert it readily.

A Voice—What did you fill with, doctor?

KINGSLEY, N. W.—I filled that with some amalgam of my own make, which has proven to be the best I ever saw. It does not tarnish and retains its color well, and in no instance of its use have I seen a tooth discolored by it. But I can't reproduce it. It was an accident. It was made by tumbling all sorts of amalgams into the crucible to see what would come out.

I would like to introduce Dr. How, whom many of you have met, and who has a new method of attaching pivot teeth.

ARTIFICIAL CROWNS.

By W. STORER HOW.

I THANK you for the opportunity of presenting this subject, which has been very much on my mind lately, and to such an extent that last fall I went to Philadelphia with several crowns to see about the manufacture of them. The S. S. White Dental Manufacturing Company asked me to lay other things aside for a time and present these crowns. I had sent them a manuscript which went into the hands of Dr. Jas. E. Dexter. He was engaged in the preparation of an article on crowns which has begun its appearance in the *Dental Cosmos*, and in the May number he alludes to some of my crowns. I have merely brought forward at this time the four pin crown, which is illustrated in the April and May numbers of the above journal, and I need say but little in addition to what has been said in those articles. On showing this crown to Dr. N. W. Kingsley, he said: "I am going to Albany, and it may be that opportunity will be offered you there for the presentation of this subject." So I stand before you. I am sorry to have monopolized the black-board, but in the hope of saving your time I have roughly drawn some diagrams.* In considering the subject of crowns to be placed upon roots wherefrom the natural crowns had entirely disappeared, I found that there were in practice three fundamental systems: the dowel system, or plain pin, inserted in both root and crown; the nail system, as I shall call it, in which the pin is made fast in the crown and driven or pushed into the drilled root, or into the enlarged cavity within the root, previously filled with plastic material. The other system is the screw system, and these diagrams represent roughly one of the principal methods adopted, by means of which, after the root is prepared, the canal is tapped to

*See Dr. Jas. E. Dexter's, also the essayist's, contributions to the subject in the *Dental Cosmos*

the proper depth ; the crown with a hole extending entirely through, has an outer recess in it ; and then a headed screw is put through the crown into the root and the crown made fast by turning the screw. It seemed to me that the screw device afforded a secure foundation upon which to build a permanent attachment to the root ; but the uncertainty of procuring a crown and root in which the cavities in the root and crown should be axial, and so enable one to turn in the headed and straight screw, struck me as a difficulty which could readily be overcome by an improved method ; for it is frequently, almost generally, the case that you wish to enter the crown at an angle with the root, and then you cannot turn the screw ; for, as you see by this drawing, the crown is out of line. Therefore it would be necessary to bend the screw, and then of course it could not be inserted through the crown. I then proceeded upon this plan of making a stout screw without a head. The question was how to get it in the root. The body of the root is concealed, and you have no idea of what length of root you have, so that it must be measured or gauged, and to that end I devised a little gauge for measuring the distance from cervix to apex to ascertain what we had to begin work upon. By observation of a large number of roots, I have reached the conclusion that the average root might be drilled to about one-half its length as shown by the gauge. Having drilled a definite length, you set the tap to the same depth, and tap the root to that depth. Then the screw post having been provided, of a certain length, that is inserted in the little holder into which it is turned with the fingers until it projects from the holder just the measured distance which you have in the gauge. The difficulty of tapping a hole squarely to the bottom is considerable, therefore the tap is set a little short of the length of the drill. This screw post is formed to suit the tap and is inserted by means of the holder, which has a jamb-nut in the rear of it, to limit the post to the gauged depth : you then turn it into the root until it comes flush down. You find usually that the post needs to be bent in order to bring it into line ; and having made it firm you bend it into line while in the root, then release the chuck and you have the post projecting nearly in proper position, but if on shutting the jaws you find it too long or in the way, cut it off with the excising forceps.

The crown of which I now speak is the four pin crown which you slide in on the post from the front. Between the neck pins of the crown there is a little projection which enables you to get the distance from the labial margin of the root-neck to the post, so that there shall be no overlapping of the crown. Then grind this crown-rib away with a disk, and the tooth is slid on and off until it is flush with the root margin. These pins are now to be bent over the mandrel and slipped endwise over the post, and then the grinding of the crown is begun. That is done with the engine and a stump corundum wheel. Having fitted the crown and found it to be perfectly in line, these pins are to be pinched in with the special pliers upon the threads of the screw post, and the crown is thus locked upon the root by means independent of the backing. The backing of cement, gold or amalgam is then packed in to completely surround the post and pin, to which, being round in cross section, the backing is firmly held.

A Voice—What is the backing?

HOW, W. S.—Any plastic filling, or gold, as you may choose. The result is we have a screw firmly planted in the root and firmly planted in the crown. The crown serves as a nut without having been turned, so it's a jamb-nut and firmly attached to the root. There is no possibility that I see of its retraction from that grasp.

HUDSON, R. N.—How do you secure the joints from future decay?

HOW, W. S.—By means of the backing.

MILLER, C.—On the crown of the tooth?

HOW, W. S.—The crown touches at but a point. The whole surface was a joint in the old pivot tooth, and a defective one. This process reduces that joint to a point, with a corresponding probability of increasing the life of the crown, because the remainder is made by the plastic compound which forms a tight joint.

MILLER, C.—Anything in the other joint?

HOW, W. S.—I do place there a little gutta-percha or amalgam. I should have shown a recess formed in order to reduce the root-surface to the lowest mark and also to get a strong hold on the root, besides surrounding the post with

another metal nut which increases the resistance at this point and gives constantly a resistance to outward or inward stress.

MILLER, C.—Do you close the apex of the root?

HOW, W. S.—Certainly; I assumed that to have been done, but I didn't take your time to describe it.

A Voice—How do you know you get to the end of the root?

HOW, W. S.—Because there is a shoulder there that you strike with a square-ended plugger. I know that I will not go through the foramen by the use of the gauged exploring instrument.

CARR, WM.—I had hoped to explain Dr. Büttner's method of inserting crowns, but in order to save time I will explain it during the election.

ABBOTT, F.—I would like to speak of this. It is a beautiful piece of work, and it is well worth looking at.

BARRETT, W. C.—I desire to exhibit something which was sent to the Chairman of the Committee of Arrangements with the request that I should present it. It is from Dr. Eccleston, of Oxford, in this State—a man who has done some creditable things, but who has not received the applause which is justly due him. He has devised a crown which is exceedingly simple. It is nothing more or less than an ordinary crown with a large platinum pin which is easily bent into any required position. In some of them it is baked in and in others it is cemented. It is a simple pivot tooth with a metallic pivot through it. It can be bent before insertion and it can be placed upon the root and cemented into position. I have used for cement oxyphosphate of zinc.

DISEASES OF THE ANTRUM.

By FRANK ABBOTT, M. D., New York.

I PRESUME all of you know something, and perhaps many of you very much more than I do, about the antrum of Highmore, its diseases, etc. However, I have been requested by the President of this Society to come here and talk to you upon some subject of general interest to us all, and he chose, among several I gave him, "Diseases of the Antrum." You will excuse me if I talk to you as I would to a class of students, giving you the anatomy of the antrum, its functions, its diseases, their treatment, etc., etc. The antrum of Highmore, or maxillary sinus, is a cavity situated on either side of the nose in the body of the superior maxillary bone. It varies in size from that of a small chestnut to a large hickory nut, in different persons. It is said by some to be an irregular triangularly-shaped cavity, but I have so far failed to discover one single instance where the shape of an antrum would give me an idea of a triangle. There are some cases where horizontally it will be found to be extremely flat, others very deep, another will be deep from top to bottom, others again very shallow, etc. The floor of the antrum is the alveolar process which is immediately over the ends of the roots of the second bicuspid, first and second molar teeth. The roof of it is the floor of the orbit. The plate between the orbit and the antrum is perhaps one-thirty-second of an inch in thickness in its thinnest place but growing thicker as we near the border. The wall separating it from the nares is equally thin. Upon the outside, immediately over the second molar, or between the roots of the first and second molars, the wall is found very thin and easily punctured with a trocar. In the roof of the mouth, on either side, about three-fourths of an inch from the median line, is another point where the wall is thin and easily penetrated.

the bone being about one-sixteenth of an inch in thickness. The antrum has two openings into the middle meatus of the nose. One of the openings is usually closed by the mucus membrane which lines it. The other is small, only sufficiently large to admit the end of an ordinary probe. When, however, from any cause, the mucus membrane becomes removed, the two openings are readily found, as may be seen in this skull. The same mucus membrane which lines the nares passes through these openings into the antrum, which is lined with it. We have made an opening into it in order that its inner portion may be examined, the thickness of the nasal wall ascertained, etc. Passing an instrument into the antrum in front, we find that it is in this instance an inch and a quarter in depth, and from the floor of the orbit to the alveolar process (the floor of the antrum) we find it about the same distance, viz., one and one-quarter inches. We have here, therefore, an antrum one and one-fourth inches in two directions. If we now pass the instrument in over the molar teeth, we find it coming in contact with the nasal wall at the depth of half an inch. As I said before, it is lined with mucus membrane the same as the nose. Its function is supposed to be to hold a certain amount of air, the same as the frontal sinuses, which are located in the frontal bone above and a little to the right and left of the nose. In this skull they are opened and are plainly seen. Not until comparatively recently has it been determined what the function of these sinuses really was. It is supposed that the air here contained being of the same temperature of the body mixes with the cold air as it is drawn through the nares on its way to the lungs and heats it to a certain extent, so that when it reaches the lungs it is more agreeable to them than it otherwise would be, consequently conducive to health. It seems to be a rational explanation at least. You will see very readily, gentlemen, that a severe blow upon the cheek might injure the antrum, as the bony covering is very thin. You can see, also, how a dead tooth may produce disturbance from the protruding of its root through the floor of the antrum. The roots of the first and second molars, and often the second bicuspid, yes, the first bicuspid and canine even, are sometimes involved in an abscess of the antrum. Not long since I had a case under treatment where the lateral incisor had

produced an abscess which had worked its way into this sinus. Abscess of the antrum is by far the most frequent disease to which it is subject, and in nearly every case a pulpless tooth is the cause. It is true an abscess may be produced, and is sometimes produced, by other causes, such as, for instance a very severe and long-continued coryza, or a severe inflammation of its lining mucous membrane produced by an injury, but such cases are comparatively rare. I presume there is not a person present who has not, during a very severe cold in the head, had a feeling of distention well marked, in the cheeks and forehead. This is caused by inflammation of the mucous membrane lining the maxillary and frontal sinuses. In such conditions it sometimes happens that the openings from the antrum to the nose become closed, and should the catarrh become chronic, perhaps permanently. Then it is that this sinus becomes filled with an exudation from its own mucous membrane, and unless it be evacuated ulceration will follow, and all the distressing features of an abscess will follow. If, however, it is evacuated before ulceration takes place the case is called dropsy of the antrum. We have cases of this kind where the face swells to an enormous extent and large lumps in different places are produced upon the face, which eventually discharge. I know a gentleman who has an opening from the antrum through the cheek, discharging all the time, and the surgeon who has charge of the case is in a fearful quandary to know how to get rid of it. I know of another instance where the case has been in the hands of a gentleman in this room, where he finds the opening into the nose has been closed permanently. There has been such a continued inflammation of the mucous membrane in this case that granulation has taken place and closed up the naso-antral opening. Until that opening is reëstablished he cannot allow the opening which he has through the socket, where a tooth came out, to close. Should he allow it to close, the antrum would fill and the patient would have all the trials and tribulations attending an abscess of the antrum. We are told by writers upon this subject that it is usually the palatal roots of the molars which penetrate the floor of the antrum. I have examined many skulls for the study of this cavity, its diseases, etc., and in the great majority of them where any roots of the molar

teeth were to be found protruding into it, they were the buccal. It is, however, a very easy matter to find any one, and sometimes even all the roots of a molar piercing the floor of this cavity. The reason for this lies in the fact that no two skulls are to be found where the antrums are just alike. Some are large, some small; some are located high up, while others are down low; some are placed forward very prominently, others are to be found very far back. Sometimes in the same skull one antrum is found much higher up than the other, perhaps further back, or much larger. So that in the case of an abscess produced by what is called a dead tooth, it is almost impossible to determine the particular root that has caused it. The first thing to determine is whether such an abscess exists. This leads us to a study of the symptoms, which are, first, a dull, heavy pain of long duration in the cheek of the affected side; second, tenderness upon pressure over the canine fossa, and in the roof of the mouth upon that side; third, a bulging of the wall into the mouth; fourth, an unusual discharge from the nostril of offensive matter; fifth, a crackling sound caused by the springing of the weakened wall when pressure is produced over the canine fossa. Having determined that an abscess of the antrum exists we then look for the cause, and, as I have before remarked, we usually find a dead tooth upon that side of the upper jaw, which we at once conclude is the offending organ. This should at once be removed and an opening into the antrum large enough to admit the point of a syringe, with considerable room to spare, at once effected through the socket nearest the front of the mouth. This is the anterior buccal root socket. I prefer to treat the abscess through this, because it is more convenient to get at. First wash out the antrum thoroughly with warm salt and water, using about a teaspoonful of salt to a glass, or half pint of water. If thrown in with slight force no irritation is produced mechanically, but instead, this substance has a very soothing effect upon the inflamed mucous membrane. The large size of the opening through which the syringe is passed, admits of the discharge of the excess of material used as a dressing, and it being a depending opening allows the antrum to empty itself, a point always to be observed in the treatment of any disease of this sinus. After using the salt and water, if there is still an offensive

odor, syringe with a solution of permanganate of potash and water, two grains to the ounce. This, aside from being the most effective deodorizer we have, is a very good antiseptic. Then syringe with a carbolic solution, one drachm to eight ounces of water, or with listerine. Then make a plug by winding a bit of cotton around a sprig of broom-corn, first notching it a little so that the cotton will not slip off, dip this into carbolized oil—one part of carbolic acid to fifteen of oil of sweet almonds—then push it into the socket so that it enters the antrum, and in order to secure it tie the end of it which projects into the mouth to an adjoining tooth, or if the teeth are all out and a plate is worn, a notch should be cut in the side of the plate so that it may be fastened to that. These precautions are taken to prevent the plug from being forced into the antrum, or its falling out. This dressing repeat once a day, and if an improvement is observed make the plug a little smaller each day, letting the opening heal slowly for about ten days, when it will be nearly closed. Then leave the plug out altogether and let it close up. If no improvement is perceptible after two or three dressings, syringe with a solution of iodine, carbolic acid and water. To the carbolic solution I gave you a few minutes since add an ounce of tincture of iodine, sometimes it may be necessary to use even a more powerful stimulant, such as the following: Zinc chloride, ten grains to an ounce of water. A saturated solution of chlorate of potash in water sometimes proves beneficial. After using the above remedies for several days, if there is still a discharge of pus, give the patient sulphide of calcium, one-tenth of a grain pill three times a day, after meals. Double this dose if necessary. With this treatment I have never failed to get good results.

In case of an abscess, dropsy or any other disease of the antrum, where the teeth are not involved, the best treatment, in my judgment, is to make an opening through the mucous membrane and process between the roots of the first and second molars, being careful that the opening extends to the floor of the antrum, so that by inclining the head slightly it will readily empty itself. Then treat as before described.

Another disease, fortunately seldom met with, is that of polypos. I have never yet seen a case, but should one pre-

sent itself for my treatment I should, after becoming sure as to diagnosis, proceed to make an opening into the antrum (probably by removing a tooth) large enough to enable me to make a critical examination of its entire wall, and when I had ascertained the point to which the tumor was attached, with a sharp instrument, adapted to the case, detach it, cut or tear it in pieces and remove it. With the probability of a return of the tumor, I should take measures to keep the opening into the antrum from closing for some months, then, if no new growth was perceptible, allow it to close.

INCIDENTS OF OFFICE PRACTICE.

SECOND DAY—MORNING SESSION.

BÖDECKER, C. F. W.—A little more than a year ago a young gentleman about eighteen years of age, of good constitution, came to me with the left upper first molar very badly decayed, and as I was about to fill the other teeth I advised him to have the roots removed. When this had been done he came back and told me that every other day or so he had a very bad taste in his mouth. I examined the place and found that there was trouble with the antrum. I treated the antrum for about a week, but I found the nasal opening closed. I could inject only a few drops of liquid and this would drive pus back. I then made an apparatus consisting of a platinum tube, which was inserted through the root-opening and bound to the bicuspid. This was in there about two weeks and the antrum was cured, but the nasal opening was not reëstablished.

This patient was at one time a patient of Prof. Jacobus', and he was consulted about the trouble. He has treated the case a long while, but up to the present it stands as at first, with the nasal opening closed. The history of the case is, that the gentleman had nasal catarrh about two years, and his speech was somewhat marred by talking through his nose, which I attribute at least partially to the closure of the opening. In the treatment of this antrum I used several remedies. At first I used five per cent. and then ten per cent. solution of chloride of zinc. This had a very good effect upon the inflammatory condition. I also syringed the cavity out with three per cent. solution of boracic acid, which is a good disinfectant. I also used iodoform in ether, and this seemed to stop the exudation more than anything I had used before. To-day this case is in the same condition, with the opening closed, and I have

proposed the usual operation to reëstablish the opening; otherwise I am afraid the catarrh will not be cured.

ATKINSON, W. H.—That brings up the point as to where the opening should be made and whether there is need of more than one opening into the antrum. The closure of the antrum is sometimes above the middle turbinated bone and sometimes below it, and usually is an agglutination of the mucus membrane that covers the bone which closes the natural opening. And a person has, with such examples as were named yesterday in Dr. Abbott's remarks, dropsy of the antrum. The thing I wish to impress upon the mind is that it is better to take a plain burnisher of the flat kind, such as we use between the teeth in proximal fillings, that is lancet shape without proper edge, and peel the way through, between the curves of the turbinated bone, and thus open the antrum. The general surgeons are in the habit of perforating the bones. That does it, but not so artistically or satisfactorily as the re-opening of the natural channel; still we do not suggest cutting it open exactly through the new formation, which is always *scar tissue*. You are within the line to have it covered with epithelium and have it perform the original function. And the special point is the hydroscopic character of the epithelial corpuscles that constitute pavement epithelium. They have a great affinity for water, and some one said last night to use warm salt water. That I discovered and promulgated a long time ago, as salt is to the human body as is any hydroscopic food; it does not affect the affinity for the solution inside of the epithelium scales as to swell up and close these passages. If you get a cold, snuff plain water in the nostrils. The side that was not closed will be closed for the time. The water that has no salt in it swells up the epithelial bodies. That is the rational of the process. Two other points are worth consideration when we have this subject before us. That is, the formation of polypus, which was spoken of yesterday in so light a manner by Dr. Abbott. It is not a light thing to have a polypus in any portion of the air passages to the antrum, for the very reason that it always originates in a very simple way by this hydroscopic action of these tissues and we get a gelatinous polypus which is as simple as a wart that we can twist off. If continued it will become aneurismal polypus, and then you

may get a form of disease which may degenerate into cancer. The old advice was to open into the antrum and when you had exposed the contents to chop it up into little masses and wash it out. That is bungling and it is a daring operation. Before you cut, determine whether there is a polypus, cancer or necrosis, and whether there is loss of the natural surface and the bad odor which is always present when the tissue is in retrograde metamorphosis by which you get this odor, which comes from the generation of ammonia by destruction of tissue. I wish to enter a caveat against meddling haste and put a finger-board up, saying: be careful, and when you don't know what to do, do nothing, but wait developments, or ask counsel. There are men who know how to diagnose between polypus and cancer, which is true epithelioma. There is the polypus of cheesy character which we had brought out by Dr. Hailes, which we heard yesterday with such joy and interest. So we want to discriminate what the tissues are before we iconoclastically induce a set of processes that may result in we know not what. I will speak of a case. When I was a tow-headed boy, we had a physician on whom we relied. My brother Jonathan was attacked with a gelatinous polypus and the physician treated it with escharotics, supposing it to be necrosis of the nasal bones. It developed into an aneurismal polypus, distending the face, destroying the sight by filling the antrum and compressing the sockets so as to push the eyes out. In 1833 he was taken to Philadelphia and operated upon by Prof. G. W. McClellan (the father of George B. McClellan, who is our General in the army), and by Prof. Granville Sharp Pattison, who lately died in New York city. They operated by ligating the carotid artery. They had intelligence to see there was danger without securing the source of the blood supply that kept up the growth before operating. That operation was made by tying the artery, and in four weeks the ligature came out and the operation was then made. A mass weighing one and one-fourth pounds was taken out of the cavity and a bone three-fourths of an inch long and one-fourth of an inch thick at the butt end, running to a flattened point, was found in it. My brother came home and for a time we deemed it a cure, but when the the circulation was renewed by enlarged of the anastomosing vessels the polypus grew again, and the chamber

was as full as ever. A gentleman who had been cured by an Indian quack doctor came to us and convinced us that the character of the disease was the same as he had, and I took my brother to the quack. He gave him *sorbus acuparia* (mountain ash) and saturated him with a solution of that in cold water, and that cured that aneurismal polypus. My brother died four years ago, but lived in comparatively good health during all that time. I state this so as to make it strong on your mind, that you had better not meddle with things you are not master of.

APPENDIX.

DENTAL SOCIETY OF THE STATE OF NEW YORK.

Permanent Members.

Ambler, J. G.	New York.
Ames, F. LeG.	Albany.
*Allen, W. H.	New York.
Atkinson, W. H.	New York.
Allen, J.	New York.
*Austin, J. C.	Albany.
Bogue, E. A.	New York.
Bronson, W. A.	New York.
Bödecker, C. F. W.	New York.
Brockway, A. H.	Brooklyn.
Baxter, E. C.	Albany.
Barnes, C.	Syracuse.
Barrett, W. C.	Buffalo.
Carr, W.	New York.
Cook, C. D.	Brooklyn.
Chapman, A. N.	Brooklyn.
†Clowes, J. W.	New York.
Crandall, C. P.	Brooklyn.
Colton, A.	Hudson.
Colgrove, W. H.	Johnstown.
Dwinelle, W. H.	New York.
Daboll, G. C.	Buffalo.
†Elliott, W. St. G.	London.
Elmendorf, M. E.	Brooklyn.
Elliott, W. S.	Goshen.
Francis, C. E.	New York.
French, S. D.	Troy.
French, F.	Rochester.
Freeman, S. A.	Buffalo.
Hill, O. E.	Brooklyn.
Holmes, A. M.	Morrisville.
Harvey, C. W.	Buffalo.
Harvey, L. F.	Buffalo.
*Hayes, G. E.	Buffalo.
Harreys, C. W.	New York.
Ireland, L. E.	Oneonta.
Jarvie, W., jr.	Brooklyn.
†Jarvis, O. A.	New York.
Kingsley, N. W.	New York.
†Lord, Benj.	New York.
Lamb, Geo. E.	Port Henry.
Line, J. Edw.	Rochester.

Marvin, E. A.....	Brooklyn.
Mirick, H. G.....	Brooklyn.
Mensch, C. E.....	Brooklyn.
McGregor, B. R.....	Albion.
Merritt, C.....	New York.
Miller, C.....	New York.
Nellis, F. D.....	Syracuse.
Northrop, A. L.....	New York.
Palmer, S. B.....	Syracuse.
Perry, S. G.....	New York.
Perkins, W. W.....	Baldwinsville.
Priest, A. N.....	Utica.
Race, J. N.....	Brooklyn.
Rathbun, B.....	Dunkirk.
Rich, C. F.....	Saratoga.
Rogers, L. W.....	Utica.
Shannon, W. P.....	Brooklyn.
Straw, L. S.....	Newburgh.
Sloan, P.....	Canajoharie.
Stillman, S. L.....	Greenwich.
Stacks, C. E.....	Glens Falls.
Southwick, A. P.....	Buffalo.
Tripp, G. W.....	Auburn.
Van Vleck, C. K.....	Hudson.
Van Vleck, W. B.....	Hudson.
Winne, W. F.....	Albany.
Woodward, C. A.....	Brooklyn.
Young, O. R.....	Troy.
§Young, H. H.....	Troy.

Honorary Members.

T. W. Evans.....	Paris, France.
J. W. Crane.....	Paris, France.
L. S. Burrige.....	Rome, Italy.
W. C. Horne.....	Rome, Italy.
F. P. Abbott.....	Berlin, Prussia.
W. H. Waite.....	Liverpool, England.
C. A. Hastings.....	Rio Janerio, Brazil.
S. H. Cartwright.....	London, England.
E. Maynard.....	Washington, D. C.
S. M. Nash.....	New York.
J. S. Dodge, jr.....	New York.
F. N. Seabury.....	Providence, R. I.
*M. H. Webb.....	Lancaster, Pa.
H. E. Knox.....	San Francisco, Cal.
R. F. Hunt.....	Washington, D. C.

* Deceased.

† Resigned.

‡ Failed to qualify.

§ Dropped.

Masters of Dental Surgery (M. D. S.)

G. V. Emens.....	Hannibal.
T. S. Hitchcock.....	Seneca Falls.
S. B. Palmer.....	Syracuse.
C. E. Francis.....	New York.
S. M. Nash.....	New York.
A. P. Southwick.....	Buffalo.
J. A. Perkins.....	Albany.
W. B. Van Vleck.....	Hudson.
J. C. Gifford.....	Westfield.
W. C. Barrett.....	Buffalo.
A. W. Doty.....	Windham.
W. K. Doty.....	Windham.
S. D. French.....	Troy.
A. Colton.....	Hudson.
O. A. Jarvis.....	New York.
A. J. Waid.....	Gouverneur.
N. C. Morris.....	Sommerville, N. J.
G. C. Daboll.....	Buffalo.
B. Rathbun.....	Dunkirk.
F. French.....	Rochester.
J. G. Ambler.....	New York.
D. F. Wilcox.....	Catskill.
S. H. Cartwright.....	London, England.
C. Kingsley.....	Paris, France.
L. F. Harvey.....	Buffalo.
A. C. Hawes.....	New York.
W. A. Bronson.....	New York.
A. L. Northrop.....	New York.
N. W. Kingsley.....	New York.
A. N. Priest.....	Utica.
J. Edw. Line.....	Rochester.
F. E. Perry.....	Norwich.
C. W. Stainton.....	Buffalo.
W. Jarvie, jr.....	Brooklyn.
O. E. Hill.....	Brooklyn.
A. H. Brockway.....	Brooklyn.
S. H. McCall.....	Binghamton.
F. D. Nellis.....	Syracuse.
C. F. Rich.....	Saratoga.
J. C. Curtis.....	Fulton.
J. B. Wilmott.....	Toronto, Ont.
F. E. Howard.....	Geneseo.
T. H. Burras.....	New York.
J. M. Howe.....	New York.
J. S. Walter.....	Rochester.
W. S. Elliott.....	Goshen.
C. F. W. Bödecker.....	New York.

J. D. Maynard.....	Rochester.
W. A. Campbell.....	Brooklyn.
C. H. Biddle.....	Brooklyn.
C. E. Mensch.....	Brooklyn.
F. C. Walker.....	Brooklyn.
C. C. Allen.....	Brooklyn.
S. F. Cook.....	Brooklyn.
R. C. Brewster.....	Brooklyn.
H. G. Mirick.....	Brooklyn.
J. A. Converse.....	West Troy.
F. E. Taylor.....	Malone.
C. Miller.....	New York.
C. F. Allen.....	Newburgh.
I. B. Davenport.....	North Adams, Mass.
S. E. Davenport.....	Northampton, Mass.
D. J. Fuller.....	Brooklyn.
F. W. Moore.....	Brooklyn.
A. P. Burkhart.....	Dansville.
J. E. Dexter.....	New York.
F. B. Dixon.....	New York.
E. D. Fuller.....	Peekskill.
L. G. Wilder.....	Brooklyn.
H. Rosa.....	Kingston.
L. S. Straw.....	Newburgh.
F. O. Kraemer, jr.....	Brooklyn.
C. L. Dubar.....	New York.
W. H. Rider.....	Danbury, Conn.
W. D. Woodward.....	New York.
E. F. Hanks.....	Jersey City, N. J.
W. W. Walker.....	New York.
J. W. Russell.....	Brooklyn.
J. H. Reed.....	New York.
J. E. Taggart.....	Westport.
W. C. Hayes.....	Buffalo.

REGISTERED AS PRACTICING DENTISTS.

ARRANGED ALPHABETICALLY BY COUNTIES, AND GIVING NAMES, POST-OFFICE ADDRESSES AND DATES OF REGISTRATION OF PERSONS REGISTERED WITH THE SEVERAL COUNTY CLERKS AS PRACTICING DENTISTS OF THE STATE OF NEW YORK.

Albany County.

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John C. Austin.....	14 N. Pearl, Albany.....	July 26, '79
F. Le Grand Ames.....	63 Washington ave., Albany.....	Aug. 2, '79
John F. Brown.....	99 N. Pearl, Albany.....	July 23, '79
Edwin C. Baxter.....	50 N. Pearl, Albany.....	Aug. 7, '79
J. Wallace Canaday.....	48 N. Pearl, Albany.....	July 22, '79
Wm. F. Carter.....	Remsen, Cohoes.....	July 22, '79
J. S. Crane.....	Factory, Cohoes.....	Aug. 12, '79
James H. Converse.....	Meneely building, West Troy.....	Aug. 14, '79
Thomas Elkins.....	77 1/2 Broadway, Albany.....	July 21, '79
E. C. Edmonds.....	109 N. Pearl, Albany.....	July 26, '79
James A. Gallup.....	Berne.....	Aug. 6, '79
Charles H. Gabeler.....	777 Broadway, Albany.....	Aug. 12, '79
Andrew Hoffman.....	91 1/2 Hudson ave., Albany.....	Aug. 13, '79
Fletcher P. Keefer.....	Keefer's Corners.....	Aug. 12, '79
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T. W. Nellis.....	57 S. Pearl, Albany.....	Aug. 14, '79
F. Onimett.....	91 Grand, Albany.....	July 26, '79
M. L. Rhein.....	97 Hudson ave., Albany.....	July 23, '79
N. P. Rugg.....	777 Broadway, Albany.....	Aug. 8, '79
D. E. Rugg.....	777 Broadway, Albany.....	Aug. 9, '79
Van Dyke Schermerhorn.....	Remsen, Cohoes.....	Aug. 19, '79
E. F. Skinner.....	30 N. Pearl, Albany.....	Aug. 4, '79
D. L. Snyder.....	777 Broadway, Albany.....	Aug. 12, '79
Frank Schermerhorn.....	Remsen, Cohoes.....	Aug. 19, '79
S. Tibbetts, jr.....	37 N. Pearl, Albany.....	July 23, '79
Walter W. Winne.....	649 Madison ave., Albany.....	July 21, '79
C. J. Wood.....	32 Eagle, Albany.....	July 23, '79
C. F. Wheeler.....	48 N. Pearl, Albany.....	July 23, '79
Franklin Winne.....	649 Madison ave., Albany.....	July 24, '79
C. C. Willis.....	Coeymans.....	July 26, '79
Wm. F. Winne.....	9 Lancaster, Albany.....	July 26, '79
E. M. Willett.....	693 Broadway, Albany.....	Aug. 4, '79
H. D. Waldo.....	Meneely's building, West Troy.....	Aug. 13, '79

Allegany County.

Name.	Office and P. O. Address.	Date of Registration.
L. E. Wiles.....	Andover.....	July 12, '79
Andrew Peters.....	Rushford.....	July 12, '79
M. Bourdon Cottrell.....	Alfred Center.....	July 18, '79
L. M. Cottrell.....	Alfred Center.....	July 18, '79
C. B. Newton.....	Belmont.....	July 19, '79
J. A. Moores.....	Centerville.....	July 21, '79
F. A. Long.....	Belmont.....	July 23, '79
H. B. Gorton.....	Friendship.....	July 24, '79
Charles P. Carver.....	Angelica.....	July 25, '79
Dewitt C. Alford.....	Oramel.....	July 26, '79
M. D. Burlingame.....	Almond.....	July 26, '79
H. L. Ennis.....	Friendship.....	July 28, '79
G. Whipple.....	Cuba.....	July 28, '79
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David Sill.....	Rushford.....	Aug. 5, '79
L. M. Raub.....	Bolivar.....	Aug. 8, '79
J. G. Wilson.....	Wellsville.....	Aug. 8, '79
F. S. Burlingame.....	Belfast.....	Aug. 11, '79
William H. Harris.....	Canaseraga.....	Aug. 12, '79
Willard H. Jones.....	Wellsville.....	Aug. 11, '79
E. L. Jones.....	Wellsville.....	Aug. 11, '79
H. M. Sheerar.....	Wellsville.....	Aug. 12, '79
Otis Whipple.....	Belfast.....	Aug. 13, '79
Job Smythe.....	Hallsport.....	Aug. 14, '79
Newton Fuller.....	Cuba.....	Aug. 15, '79
William S. Ellis.....	Caneadea.....	Aug. 18, '79

Broome County.

Name.	Office and P. O. Address.	Date of Registration.
C. A. Perkins.....	67 Court, Binghamton.....	July 19, '79
G. Albert Denike.....	10 Chenango, Binghamton.....	July 19, '79
Wilber Spencer.....	Lisle.....	July 21, '79
A. A. Ballou.....	96 Court, Binghamton.....	July 21, '79
S. W. Adamy.....	Union.....	July 22, '79
A. K. Harroun.....	Binghamton.....	July 23, '79
Wm. H. Hall.....	Hagamon block, Court, Binghamton...	July 24, '79
W. W. Wheaton.....	96 Court, Binghamton.....	July 26, '79
Albert D. Turner.....	70 Court, Binghamton.....	July 28, '79
H. Hodge.....	67 Court, Binghamton.....	July 29, '79
Eli Sweet.....	Whitney's Point.....	July 30, '79
S. H. McCall.....	12 Henry, Binghamton.....	July 31, '79
L. E. Knapp.....	Main, Deposit.....	Aug. 5, '79
G. E. Smith.....	12 Henry, Binghamton.....	Aug. 5, '79
Charles W. McCall.....	12 Henry, Binghamton.....	Aug. 6, '79
W. B. Carpenter.....	Main, Deposit.....	Aug. 7, '79
F. B. Brown.....	Main, Deposit.....	Aug. 12, '79

Name.	Office and P. O. Address.	Date of Registration.
J. C. Robie.....	87 Court, Binghamton.....	Aug. 14, '79
J. L. Wager.....	Dupont.....	Aug. 14, '79
Walter G. Bronson.....	Lisle.....	Aug. 16, '79
Addison V. Sanford.....	6 Court, Binghamton.....	Aug. 18, '79
J. Snyder.....	134 Court, Binghamton.....	Aug. 18, '79
Geo. A. Bishop.....	51 Court, Binghamton.....	Aug. 19, '79
T. J. Wheaton.....	134 Court, Binghamton.....	Aug. 19, '79

Cattaraugus County.

Name.	Office and P. O. Address.	Date of Registration.
T. A. C. Everett.....	Randolph.....	July 17, '79
G. R. Peters.....	Salamanca.....	July 18, '79
M. F. Lenox.....	Cattaraugus.....	July 24, '79
V. A. Silva.....	Olean.....	July 28, '79
D. E. Barrows.....	Yorkshire.....	July 29, '79
Wm. G. Burlingame.....	Ischua.....	July 29, '79
E. S. Jackson.....	Portville.....	July 31, '79
J. H. Freeman.....	Yorkshire Center.....	Aug. 1, '79
Fred W. Fish.....	Olean.....	Aug. 4, '79
W. L. Fisher.....	Olean.....	Aug. 4, '79
J. Barrons.....	Yorkshire.....	Aug. 6, '79
Wm. A. Day.....	Franklinville.....	Aug. 6, '79
E. J. Chapman.....	Franklinville.....	Aug. 6, '79
L. F. More.....	Olean.....	Aug. 11, '79
C. L. Barrons.....	Yorkshire.....	Aug. 11, '79
W. C. Proctor.....	Gowanda.....	Aug. 15, '79
W. H. Johnston.....	Ellicottville.....	Aug. 15, '79
S. E. Lewis.....	Olean.....	Aug. 15, '79
John N. Cowen.....	East Randolph.....	Aug. 16, '79
Norman E. G. Cowen.....	Conewango.....	Aug. 16, '79
W. H. Reynolds.....	Red House.....	Aug. 16, '79
B. J. Servis.....	Allegany.....	Aug. 16, '79
P. E. Merrill.....	Sandusky.....	Aug. 18, '79
F. M. Merrill.....	Sandusky.....	Aug. 18, '79
E. T. Reed.....	Ellicottville.....	Aug. 18, '79
Elisha Brown.....	Versailles.....	Aug. 19, '79
Henri Ribbel.....	Cattaraugus.....	Aug. 19, '79
E. M. Reynolds.....	Allegany.....	Aug. 19, '79

Cayuga County.

Name.	Office and P. O. Address.	Date of Registration.
J. W. Whitbeck.....	17 E. Genesee, Auburn.....	July 18, '79
G. W. Tripp.....	126½ Genesee, Auburn.....	July 21, '79
V. Eugene Baker.....	29 Cayuga, Auburn.....	July 21, '79
A. J. Sprague.....	Seneca, Weedport.....	July 24, '79

Name.	Office and P. O. Address.	Date of Registration.
Edmund Carpenter.....	Venice	July 24, '79
James O. Thomas.....	Auburn	July 25, '79
Henry C. Tripp.....	126½ Genesee street, Auburn.....	July 25, '79
J. C. Knapp.....	126½ Genesee street, Auburn.....	July 25, '79
Hiram M. Shaw.....	480 Main street, Genoa.....	Aug. 1, '79
Wm. Frost.....	Owasco	Aug. 1, '79
Fred H. Moe.....	Genoa	Aug. 2, '79
A. Quigley.....	13 Owasco street, Auburn.....	Aug. 4, '79
L. A. Barber.....	20 William street, Auburn.....	Aug. 6, '79
G. B. Bentley.....	Union Springs.....	Aug. 6, '79
W. E. Allen.....	Union Springs.....	Aug. 6, '79
E. Lamb.....	13 Owasco street, Auburn.....	Aug. 12, '79
Urial Woodruff	72 North street, Auburn.....	Aug. 13, '79
George H. Swift.....	Port Byron.....	Aug. 13, '79
George B. Wright.....	148 Genesee street, Auburn.....	Aug. 13, '79
Austin Reynolds.....	Aurora	Aug. 14, '79
Joseph I. Horton.....	Moravia.....	Aug. 15, '79
R. N. Hudson.....	6 William street, Auburn.....	Aug. 16, '79
W. J. Emens.....	Auburn	Aug. 16, '79
W. M. Cutler.....	Main street, Moravia.....	Aug. 18, '79
George B. Wright, jr.....	148 Genesee street, Auburn.....	Aug. 18, '79
George H. Weeks.....	King's Ferry.....	Aug. 18, '79
John E. Savery.....	135 Genesee street, Auburn.....	Aug. 18, '79
Luman Matson.....	10 William street, Auburn.....	Aug. 18, '79
Rush M. Howard.....	Port Byron.....	Aug. 19, '79

Chautauqua County.

Name.	Office and P. O. Address.	Date of Registration.
O. L. Titus.....	Portland.....	July 22, '79
J. C. Gifford.....	Westfield.....	July 23, '79
D. D. Peabody.....	Sherman.....	July 24, '79
James Granger.....	Westfield.....	July 24, '79
E. J. Swetland.....	Panama	July 28, '79
T. C. Wilson.....	Dewittville.....	July 28, '79
J. C. Andrus.....	Silver Creek.....	July 29, '79
B. Rathbun.....	Dunkirk.....	July 30, '79
H. J. Howe.....	Dunkirk.....	July 30, '79
H. A. Hunt.....	Stockton	Aug. 1, '79
E. H. Emerson.....	Dunkirk.....	Aug. 4, '79
James A. Mead.....	Clymer.....	Aug. 6, '79
William Park.....	Fredonia	Aug. 7, '79
H. B. Arnold.....	Jamestown	Aug. 8, '79
F. C. Pierce.....	Frewsburg.....	Aug. 9, '79
C. W. Sanderson.....	Silver Creek.....	Aug. 9, '79
T. D. Phillips.....	Cassadaga	Aug. 11, '79
William A. Spear.....	Findleyo Lake.....	Aug. 13, '79
E. H. Danforth.....	Jamestown	Aug. 13, '79
E. Olin.....	Sherman	Aug. 14, '79

Name.	Office and P. O. Address.	Date of Registration.
R. R. Green.....	Fredonia	Aug. 14, '79
John B. Rawson, jr.....	Jamestown	Aug. 14, '79
Deloss P. Crumb.....	Cherry Creek.....	Aug. 14, '79
George H. Crawford.....	Ellington	Aug. 14, '79
E. L. Wert.....	Jamestown	Aug. 14, '79
F. Rich.....	Westfield.....	Aug. 15, '79
John B. Rawson.....	Jamestown	Aug. 15, '79
George A. Wilkins.....	Fredonia	Aug. 15, '79
John Clough.....	Fredonia	Aug. 15, '79
A. A. Stone.....	Sinclairville	Aug. 15, '79
Charles J. Rathbun.....	Ripley	Aug. 18, '79
L. C. Covey.....	Cherry Creek.....	Aug. 18, '79
George W. Fancher.....	Forestville.....	Aug. 18, '79
Ed. L. Steadman.....	South Stockton.....	Aug. 18, '79

Chemung County.

Name.	Office and P. O. Address.	Date of Registration.
Julius S. Root.....	328 East Water street, Elmira.....	July 26, '79
Louis B. Smith.....	310 East Water street, Elmira.....	July 26, '79
E. Goddard.....	310 East Water street, Elmira.....	July 29, '79
W. C. Stewart.....	310 East Water street, Elmira.....	July 29, '79
Richard Ker.....	110 Main street, Elmira.....	July 29, '79
James P. Morgan.....	Chemung.....	July 29, '79
Amos S. Sellen.....	317 East Water street, Elmira.....	July 29, '79
Charles S. Sellen.....	317 East Water street, Elmira.....	July 29, '79
Samuel R. Dean.....	Horseheads.....	July 30, '79
C. W. Cox.....	Horseheads.....	July 31, '79
C. M. Foster.....	106 West Second street, Elmira.....	July 31, '79
F. G. Dean.....	Wellsburg	Aug. 1, '79
C. A. Reed.....	130 East Water street, Elmira.....	Aug. 4, '79
Frank B. Darby.....	Water and Baldwin streets, Elmira....	Aug. 4, '79
James A. Hall.....	Water and Baldwin streets, Elmira....	Aug. 4, '79
R. W. Bodine.....	137 East Water street, Elmira.....	Aug. 7, '79
O. B. Comfort.....	320 East Water street, Elmira.....	Aug. 7, '79
George W. Dean.....	Horseheads.....	Aug. 13, '79
P. Newell.....	505 Fulton street, Elmira.....	Aug. 14, '79
R. B. Murray.....	128 West Water street, Elmira.....	Aug. 16, '79
D. O. Merrick.....	118 College avenue, Elmira.....	Aug. 19, '79

Chenango County.

Name.	Office and P. O. Address.	Date of Registration.
A. C. Morgan.....	Norwich.....	July 16, '79
C. G. Sumner.....	Norwich.....	July 16, '79
Lewis A. Rhodes.....	Norwich.....	July 17, '79
O. F. Coe.....	Norwich.....	July 17, '79
E. J. Allen.....	Norwich.....	July 18, '79

Name.	Office and P. O. Address.	Date of Registration.
H. A. McFarland.....	Oxford.....	July 21, '79
George P. Bliven.....	Norwich.....	July 21, '79
M. H. Fish.....	Sherburne.....	July 22, '79
E. S. Walker.....	Greene.....	July 29, '79
F. E. Gray.....	Greene.....	July 29, '79
T. J. Haskell.....	Norwich.....	July 30, '79
O. S. Hill.....	Bainbridge.....	Aug. 9, '79
C. H. Eccleston.....	Oxford.....	Aug. 11, '79
W. J. Mann.....	New Berlin.....	Aug. 13, '79
E. D. Freeman.....	Greene.....	Aug. 16, '79
Charles G. Eccleston.....	Oxford.....	Aug. 18, '79
W. H. Avery.....	New Berlin.....	Aug. 18, '79
Charles W. Spencer.....	Afton.....	Aug. 18, '79
E. F. Eccleston.....	Oxford.....	Aug. 19, '79
Ira A. Vale.....	Bainbridge.....	Aug. 19, '79

Clinton County.

Name.	Office and P. O. Address.	Date of Registration.
George F. Bixby.....	Plattsburgh.....	Aug. 6, '79
James F. Bailey.....	Plattsburgh.....	Aug. 7, '79
Martin Bixby.....	Plattsburgh.....	Aug. 12, '79
John G. DeForris.....	Mooers.....	Aug. 2, '79
Wightman A. Drowne.....	Plattsburgh.....	Aug. 7, '79
S. V. Howard.....	Plattsburgh.....	Aug. 11, '79
Samuel D. Merrill.....	Champlain.....	Aug. 2, '79
Jeremiah Potter.....	Ellenburgh Center.....	Aug. 16, '79
G. C. Randall.....	61 Margaret street, Plattsburgh.....	Aug. 9, '79

Columbia County.

Name.	Office and P. O. Address.	Date of Registration.
William H. Hoyt.....	208 Warren street, Hudson.....	July 8, '79
Charles K. Van Vleck.....	294 ½ Warren street, Hudson.....	July 8, '79
Aaron Colton.....	322 Warren street, Hudson.....	July 9, '79
William B. Van Vleck.....	294 ½ Warren street, Hudson.....	July 9, '79
Peter S. Garvey.....	Lebanon Springs.....	July 12, '79
Uriah Harmon.....	Chatham Village.....	July 15, '79
Edgar Balis.....	Chatham Village.....	July 31, '79
Henry R. Sheldon.....	208 Warren street, Hudson.....	Aug. 1, '79
J. W. Merwin.....	Valatie.....	Aug. 5, '79
R. M. Lowe.....	East Chatham.....	Aug. 9, '79
Charles Harmon.....	Chatham Village.....	Aug. 12, '79
William O. Smith.....	Germantown.....	Aug. 14, '79
William F. Burger.....	Stuyvesant Falls.....	Aug. 16, '79
H. D. Jones.....	East Chatham.....	Aug. 16, '79
C. E. Finch.....	East Chatham.....	Aug. 16, '79

Cortland County.

Name.	Office and P. O. Address.	Date of Registration.
Luther T. White.....	49 North Main street, Cortland.....	July 18, '79
Jay Ball.....	18 Tompkins street, Cortland.....	July 21, '79
Moses B. Aldrich.....	Marathon Village.....	July 21, '79
William S. Carruth.....	Cincinnatus Village.....	July 21, '79
Cassius E. Ingalls.....	49 North Main street, Cortland.....	July 22, '79
Hiram G. Ingalls.....	49 North Main street, Cortland.....	July 22, '79
Farrington C. Hyatt....	2 North Main street, Cortland.....	July 28, '79
George M. Smith.....	2 North Main street, Cortland.....	July 29, '79
Frank A. Greene.....	Clinton block, Harford Mills.....	July 31, '79
Thomson Z. Peck.....	46 Church street, Cortland.....	Aug. 2, '79
Frederick Fenner.....	Main street, Homer.....	Aug. 7, '79
Mason B. Ingalls.....	49 North Main street, Cortland.....	Aug. 7, '79
George W. Hull.....	31 North Main street, Cortland.....	Aug. 9, '79

Delaware County.

Name.	Office and P. O. Address.	Date of Registration.
Leroy H. Aldrich.....	Cannonsville.....	Aug. 12, '79
William N. Allaben.....	Margaretville.....	Aug. 19, '79
T. W. Browne.....	Delhi.....	Aug. 7, '79
L. T. Browne.....	Delhi.....	Aug. 7, '79
W. H. Crawford.....	Andes.....	Aug. 13, '79
G. W. Coye.....	Sidney Plains.....	Aug. 14, '79
Samuel F. Dexter.....	East Delhi.....	Aug. 11, '79
Edward C. Huchins.....	Roxbury.....	Aug. 5, '79
James W. Hine.....	Franklin.....	Aug. 11, '79
Robert Hughston.....	Delhi.....	Aug. 13, '79
Romulus A. Kneeland....	Franklin.....	Aug. 5, '79
Thomas E. Marvin.....	Walton.....	Aug. 4, '79
Francis E. Marvin.....	Walton.....	Aug. 4, '79
David Peabody.....	Andes.....	Aug. 13, '79
James Reynolds.....	Hobart.....	Aug. 6, '79
Henry R. Scott.....	Franklin.....	Aug. 11, '79
Harvey S. Wood.....	Stamford.....	Aug. 14, '79

Dutchess County.

Name.	Office and P. O. Address.	Date of Registration.
George Bronson.....	Pawling.....	Aug. 12, '79
R. N. Betts.....	Dover Plains.....	Aug. 12, '79
Emerson Burton.....	Main and Liberty streets, Po'keepsie....	Aug. 14, '79
Charles J. Bailey.....	Amenia.....	Aug. 16, '79
Charles R. Barlow.....	Main and Liberty streets, Po'keepsie....	Aug. 18, '79
William Cross.....	Montgomery street, Rhinebeck.....	Aug. 11, '79
H. F. Clark.....	13 Liberty street, Po'keepsie.....	Aug. 14, '79
Robert J. Clark.....	13 Liberty street, Po'keepsie.....	Aug. 14, '79

Name.	Office and P. O. Address.	Date of Registration.
Edward Cowles.....	Main street, Fishkill Landing.....	Aug. 16, '79
T. W. DuBois.....	Main street, Po'keepsie.....	July 24, '79
H. Frank Dobbs.....	348 Main street, Po'keepsie.....	July 30, '79
M. Downing.....	364 Main street, Po'keepsie.....	Aug. 5, '79
Affons H. de Moura.....	347 Main street, Po'keepsie.....	Aug. 9, '79
Charles F. DuBois.....	347 Main street, Po'keepsie.....	Aug. 11, '79
Abraham Fonda.....	101 Garden street, Po'keepsie.....	July 25, '79
George E. Farrington.....	Pleasant Valley.....	Aug. 4, '79
Frank D. Gray.....	293 Main street, Po'keepsie.....	July 25, '79
Duane Hull.....	Millerton.....	July 28, '79
John Hobbs.....	Red Hook.....	Aug. 7, '79
J. Aug. Jillson.....	27 Balding avenue.....	July 26, '79
Charles A. Jenkins.....	Amenia.....	Aug. 2, '79
F. DeForest Lent.....	293 Main street, Po'keepsie.....	July 28, '79
Frank Latson.....	Livingston street, Rhinebeck.....	July 28, '79
James H. Mann.....	310 Main street, Po'keepsie.....	July 24, '79
Chauncey D. Miller.....	293 Main street, Po'keepsie.....	July 25, '79
Malcom E. Panott.....	348 Main street, Po'keepsie.....	July 30, '79
Albert I. Pulling.....	Wappengeis Falls.....	Aug. 5, '79
L. W. Perrine.....	Mattewan.....	Aug. 15, '79
W. B. Robinson.....	Underhill building, Wappengeis Falls.....	July 28, '79
E. D. Seaman.....	Pine Plains.....	Aug. 14, '79
E. J. Shaw.....	Matteawan.....	Aug. 14, '79
M. W. Snyder.....	Barrytown.....	Aug. 19, '79
A. Von Dersenden.....	110 Union street, Po'keepsie.....	Aug. 15, '79
Conrad J. Wood.....	Main street, Wappengeis Falls.....	July 28, '79
M. H. Wygant.....	Rhinebeck.....	July 28, '79
C. W. Zimmerman.....	8 High street, Po'keepsie.....	Aug. 15, '79

Erie County.

Name.	Office and P. O. Address.	Date of Registration.
H. L. Agard.....	East Aurora.....	July 30, '79
A. C. Anthony.....	384 East Seneca street, Buffalo.....	Aug. 16, '79
W. C. Barrett.....	11 West Chippawa street, Buffalo.....	July 22, '79
W. A. Barrows.....	229 Pearl street, Buffalo.....	July 23, '79
Robert Benson.....	93 Rhode Island street, Buffalo.....	July 26, '79
Anton Bussman.....	Lancaster.....	July 22, '79
Charles S. Butler.....	263 Main street, Buffalo.....	Aug. 1, '79
W. F. Champlin.....	Grand Island.....	July 29, '79
A. F. Chapman.....	898 Prospect avenue, Buffalo.....	Aug. 4, '79
B. F. Clark.....	442 Main street, Buffalo.....	Aug. 18, '79
John V. Cole.....	Lancaster.....	July 29, '79
L. B. Cook.....	33 Church street, Buffalo.....	Aug. 16, '79
Merritt F. Cook.....	327 Main street, Buffalo.....	Aug. 13, '79
Charles Cramer.....	478 Washington street, Buffalo.....	Aug. 6, '79
Garrett C. Daboll.....	230 Pearl street, Buffalo.....	July 23, '79
John L. Daboll.....	230 Pearl street, Buffalo.....	Aug. 18, '79
Merritt H. Dailey.....	Akron.....	Aug. 5, '79

Name.	Office and P. O. Address.	Date of Registration.
George W. Dunbar.....	19 West Tupper street, Buffalo.....	July 31, '79
F. Ellsworth.....	Springville.....	July 29, '79
John Foulring.....	Springville.....	Aug. 19, '79
Samuel A. Freeman.....	14 Court street.....	Aug. 14, '79
Bernhard Gigalski.....	254 Ohio street, Buffalo.....	Aug. 13, '79
William Grinton.....	1227 Niagara street, Buffalo.....	Aug. 4, '79
William Hale.....	260 Broadway, Buffalo.....	July 30, '79
Leon F. Harvey.....	19 West Tupper street, Buffalo.....	July 25, '79
George E. Hayes.....	1125 Main street, Buffalo.....	Aug. 4, '79
John Herr.....	Williamsville.....	July 24, '79
A. G. Herr.....	Williamsville.....	Aug. 18, '79
W. Charles House.....	Holland.....	July 28, '79
Douglas S. Joyce.....	1845 Niagara street.....	Aug. 6, '79
Herbert L. Joyce.....	Broad street, Tonawanda.....	Aug. 18, '79
William H. Kezeler.....	159 East Seneca street, Buffalo.....	July 22, '79
L. R. Leach.....	Hamburg.....	Aug. 5, '79
A. C. Lewis.....	5 South Division street, Buffalo.....	Aug. 11, '79
Theodore G. Lewis.....	5 South Division street, Buffalo.....	Aug. 11, '79
Eli H. Long.....	14 South Division street, Buffalo.....	Aug. 18, '79
Edward C. Longnecker.....	102 East Genesee street, Buffalo.....	Aug. 12, '79
Frank C. Longnecker.....	537 and 539 Main street, Buffalo.....	July 24, '79
Frank Luce.....	317 Main street, Buffalo.....	Aug. 4, '79
Orlando Luce.....	317 Main street, Buffalo.....	July 27, '79
R. W. McCullor.....	Angola.....	Aug. 8, '79
R. R. McCullor.....	Evans Center.....	Aug. 7, '79
Charles Matzinger.....	67 Lemon street, Buffalo.....	Aug. 13, '79
William Pask.....	298 Elk street, Buffalo.....	Aug. 11, '79
T. S. Phillips.....	485 and 487 Main street, Buffalo.....	Aug. 6, '79
Frank L. Pierce.....	537 and 539 Main street, Buffalo.....	July 29, '79
Parker A. Poole.....	14 South Division street, Buffalo.....	July 29, '79
Fred Sauer.....	1834 Niagara street, Buffalo.....	July 25, '79
G. B. Scott.....	201 South Division street, Buffalo.....	Aug. 15, '79
Joseph Seal.....	385 Main street, Buffalo.....	July 24, '79
Gustav Simons.....	331 Broadway, Buffalo.....	July 25, '79
G. D. Smith.....	Broad street, Tonawanda.....	July 29, '79
George B. Snow.....	35 West Eagle street, Buffalo.....	July 28, '79
A. P. Southwick.....	11 Niagara street, Buffalo.....	July 23, '79
L. C. Squires.....	East Aurora.....	Aug. 7, '79
Charles W. Stainton.....	476 Main street, Buffalo.....	July 25, '79
John M. Stenger.....	Buffalo.....	July 21, '79
Milton B. Straight.....	272 Main street, Buffalo.....	Aug. 1, '79
W. A. Studley.....	Springville.....	Aug. 12, '79
Frank S. Teller.....	1052 Main street, Buffalo.....	July 22, '79
Millard C. Van Duzee.....	Lancaster.....	July 24, '79
William S. Van Duzee.....	Lancaster.....	July 24, '79
A. L. Vaughn.....	Springville.....	Aug. 6, '79
C. L. Vaughn.....	Springville.....	Aug. 12, '79
E. R. Vaughn.....	Lancaster.....	July 30, '79
Carlos Waite.....	Springville.....	July 29, '79
August Walter.....	331 Broadway, Buffalo.....	July 30, '79

Name.	Office and P. O. Address.	Date of Registration.
N. Whitcomb.	24 Erie street, Buffalo.	Aug. 12, '79
Robert G. Willet.	East Aurora.	Aug. 18, '79
Christopher Wolff.	347 East Genesee street, Buffalo.	July 28, '79
L. H. Young.	13 East Seneca street, Buffalo.	July 21, '79

Essex County.

Name.	Office and P. O. Address.	Date of Registration.
Henry H. Knapp.	Keesville	Aug. 1, '79
George E. Lamb.	Port Henry	Aug. 7, '79
Matthew Ryan.	Ticonderoga	Aug. 15, '79
J. W. H. Tefft.	Ticonderoga	Aug. 5, '79
Benj. Pond Treadway.	Crown Point Center.	Aug. 6, '79
Henry Turrill.	Crown Point.	Aug. 13, '79
George C. Wilkinson.	Keesville	Aug. 1, '79

Franklin County.

Name.	Office and P. O. Address.	Date of Registration.
Bradford M. Wilson.	Bangor.	Aug. 15, '79
Nathan E. Foote.	—————	July 25, '79
Hottis W. Merick.	Fort Covington.	July 18, '79
Ralph D. Merville.	Malone.	July 10, '79
F. E. Taylor.	Malone.	July 29, '79
James H. Winslow.	West Bangor.	July 29, '79
Hubert H. Stickney.	East Constable.	July 29, '79

Fulton County.

Name.	Office and P. O. Address.	Date of Registration.
Charles P. Bellows.	107 Main and Church sts., Gloversville.	Aug. 18, '79
William H. Colgrove.	41 Market street, Johnstown.	Aug. 2, '79
Harvey E. Cromwell.	Cottage street, Gloversville.	Aug. 7, '79
Ara Capron.	Main street, Broadalbin.	Aug. 14, '79
Charles E. Foote.	Northville	Aug. 9, '79
A. Briggs Kittson.	122 Main street, Johnstown.	Aug. 18, '79
William E. Lansing.	191 West Fulton street, Gloversville.	Aug. 14, '79
G. H. Moore.	Northville	Aug. 13, '79
H. H. Read.	115 Fulton street, Gloversville.	Aug. 4, '79
George L. Stevens.	42 Main street, Johnstown.	Aug. 2, '79
M. K. Waite.	Northville	Aug. 9, '79

Genesee County.

Name.	Office and P. O. Address.	Date of Registration.
William C. Gardiner.	92 Main street, Batavia.	July 10, '79
M. J. Davis.	Bergen.	July 14, '79
W. E. Richardson.	Alexander	July 15, '79

Name.	Office and P. O. Address.	Date of Registration.
H. H. Benjamin.....	61 Main street, Batavia.....	July 23, '79
C. Houghton.....	98 Main street, Batavia.....	July 23, '79
J. Lorish.....	Batavia.....	Aug. 1, '79
L. C. Lorish.....	Batavia.....	Aug. 1, '79
W. H. Harrington.....	Alexander.....	Aug. 2, '79
W. H. Richardson.....	Linden.....	Aug. 4, '79
F. T. Blood.....	LeRoy.....	Aug. 5, '79
I. W. Warner.....	Elba.....	Aug. 14, '79
Helena Kirk.....	98 Main street, Batavia.....	Aug. 15, '79
Henry Richardson.....	Linden.....	Aug. 15, '79
John C. Davidson.....	Batavia.....	Aug. 15, '79
Albert Westlake.....	LeRoy.....	Aug. 16, '79
Eliot P. Halbert.....	LeRoy.....	Aug. 18, '79
W. A. Keeler.....	Pavilion.....	Aug. 18, '79
G. W. Croff.....	Bethany.....	Aug. 19, '79
E. S. Dodge.....	89 Main street, Batavia.....	Aug. 19, '79

Greene County.

Name.	Office and P. O. Address.	Date of Registration.
F. M. Frayer.....	Prattsville.....	July 28, '79
B. J. Hunt.....	Oak Hill.....	July 28, '79
George E. Smith.....	Greenville.....	July 28, '79
J. A. Holly.....	Greenville.....	July 28, '79
David Ford Wilcox.....	Selleck building, Catskill.....	July 29, '79
Edwin Painter Alden.....	Opera Block, Catskill.....	July 30, '79
A. A. Mead.....	Coxsackie.....	Aug. 1, '79
Robert I. Verplank.....	Greenville.....	Aug. 4, '79
Chauncey Van Orden.....	Coxsackie.....	Aug. 4, '79
William H. Marsh.....	Westkill.....	Aug. 4, '79
H. L. Whitbeck.....	Greenville.....	Aug. 4, '79
John F. Barber.....	Selleck Building, Catskill.....	Aug. 5, '79
Albert H. Beach.....	Catskill.....	Aug. 7, '79
Henry A. Longendyke.....	Catskill.....	Aug. 7, '79
John B. Longendyke.....	Catskill.....	Aug. 8, '79
James J. Jackson.....	Coxsackie.....	Aug. 9, '79
Theodore Brinck.....	Athens.....	Aug. 12, '79
Alfred W. Doty.....	Windham.....	Aug. 18, '79
Numan F. Hill.....	Leeds.....	Aug. 18, '79

Hamilton County.

Neither register nor dentists.

Herkimer County.

Name.	Office and P. O. Address.	Date of Registration.
Clinton Chatfield.....	Herkimer.....	July 14, '79
Tryan A. Hoard.....	Herkimer.....	July 14, '79

Name.	Office and P. O. Address.	Date of Registration.
E. R. Hadcock.....	Newport.....	July 18, '79
James M. Warcup.....	Little Falls.....	July 23, '79
L. G. Haskins.....	Newport.....	July 26, '79
A. M. Brownell.....	Little Falls.....	July 26, '79
A. H. Day.....	West Winfield.....	July 28, '79
A. M. Lewis.....	Mohawk.....	July 31, '79
J. L. Learey.....	Poland.....	Aug. 2, '79
Charles J. Hall.....	Norway.....	Aug. 5, '79
C. Cutler Smith.....	Ilion.....	Aug. 5, '79
W. H. Alexander.....	Little Falls.....	Aug. 6, '79
James Lewis.....	Mohawk.....	Aug. 7, '79
Z. I. Downing.....	West Winfield.....	Aug. 7, '79
E. F. Beals.....	West Winfield.....	Aug. 7, '79
F. E. Easton.....	Cedarville.....	Aug. 7, '79
J. Ostrander.....	Starkville.....	Aug. 15, '79
J. V. Hemstreet.....	Salisbury Center.....	Aug. 19, '79
A. O. Glidden.....	Little Falls.....	Aug. 18, '79

Jefferson County.

Name.	Office and P. O. Address.	Date of Registration.
J. J. Allen.....	Depauville.....	Aug. 18, '79
A. Bain.....	Clayton.....	July 11, '79
Charles W. Bullard.....	Carthage.....	Aug. 6, '79
Bassett N. Bailey.....	Mannsville.....	Aug. 16, '79
V. R. Blanden.....	Belleville.....	Aug. 18, '79
J. J. Baldwin.....	6 Benedict street, Watertown.....	Aug. 19, '79
George A. Coe.....	Theresa.....	Aug. 13, '79
David L. Coe.....	Theresa.....	Aug. 13, '79
J. P. Dunn.....	10 Winslow block, Watertown.....	July 18, '79
William E. Dunn.....	10 Winslow block, Watertown.....	July 19, '79
F. A. Gaudett.....	Redwood.....	Aug. 5, '79
J. D. Huntington.....	Washington Hall, Watertown.....	July 24, '79
E. A. Holbrook.....	47 Arsenal street, Watertown.....	July 28, '79
C. F. Ives.....	Champion.....	Aug. 14, '79
W. A. Kelley.....	Adams.....	July 26, '79
Ralph T. Kirkland.....	Adams.....	Aug. 4, '79
G. H. Lathan.....	Antwerp.....	July 11, '79
Edwin A. Monroe.....	Carthage.....	July 21, '79
Marquis D. Manville.....	Adams.....	Aug. 5, '79
Clinton B. Parker.....	Watertown.....	July 14, '79
Myron A. Peck.....	Henderson.....	July 19, '79
Henry D. Payne.....	Watertown.....	Aug. 6, '79
S. M. Robinson.....	21 Arcade, Watertown.....	July 17, '79
Charles F. Scott.....	10 Winslow's Arcade, Watertown.....	July 15, '79
E. L. Sargent.....	9 Commercial block, Watertown.....	July 31, '79
Charles A. Smith.....	10 Winslow block, Watertown.....	Aug. 4, '79
E. D. Waterbury.....	Washington street, Sackett's Harbor.....	July 29, '79

Kings County.

Name.	Office and P. O. Address.	Date of Registration.
F. L. Allyn, jr.	262 Henry street, Brooklyn.	July 11, '79
N. M. Abbott.	11 Greene avenue, Brooklyn.	July 14, '79
Frank P. Abbott.	11 Greene avenue, Brooklyn.	July 31, '79
Ellsworth M. Ambler.	87 Division street, Brooklyn.	Aug. 8, '79
Samuel Adams	605 Myrtle avenue, Brooklyn.	Aug. 16, '79
Thomas Alvey.	138 Lefferts place, Brooklyn.	Aug. 18, '79
Charles C. Allen.	262 Henry street, Brooklyn.	Aug. 19, '79
George C. Bretz.	451 Fulton street, Brooklyn.	July 5, '79
George E. Barrett.	214 Ewen street, Brooklyn.	July 8, '79
Charles E. Brooks.	131 South Oxford street, Brooklyn.	July 8, '79
H. W. Bowers.	692 Madison street, Brooklyn.	July 8, '79
S. W. Bull.	118 Tompkins avenue, Brooklyn.	July 8, '79
William H. H. Bingham.	275 Tompkins avenue, Brooklyn.	July 9, '79
M. L. Bailey.	382 Court street, Brooklyn.	July 9, '79
Robert Bogardus.	425 Franklin avenue, Brooklyn.	July 9, '79
George W. Burch.	127 Broadway, E. D., Brooklyn.	July 10, '79
E. J. Barney.	923 Fulton street, Brooklyn.	July 10, '79
J. B. Brown.	391 Pacific street, Brooklyn.	July 12, '79
W. N. Bush.	110 Fourth street, E. D., Brooklyn.	July 16, '79
J. T. Brogan.	305 Fulton street, Brooklyn.	July 18, '79
C. H. Biddle.	50 Livingston street, Brooklyn.	July 18, '79
S. W. Bridges.	199 Clinton street, Brooklyn.	July 21, '79
Albert H. Brockway.	13 Greene avenue, Brooklyn.	July 24, '79
George Brockway.	33 Fifth avenue, Brooklyn.	July 26, '79
George Brockway.	675 Myrtle avenue, Brooklyn.	July 29, '79
H. Biggart.	417 Fulton street, Brooklyn.	July 29, '79
F. M. W. Brogan.	265 Fulton street, Brooklyn.	Aug. 7, '79
Theodore N. Brown.	98 Sixth avenue, Brooklyn.	Aug. 7, '79
George W. Brush.	144 Lawrence street, Brooklyn.	Aug. 19, '79
Robert H. Brownne.	1131 Broadway, Brooklyn.	Aug. 19, '79
Richard C. Brewster.	34 Lafayette avenue, Brooklyn.	Aug. 19, '79
H. A. Carman.	486 Fifth avenue, Brooklyn.	July 7, '79
C. C. Carpenter.	262 Dean street, Brooklyn.	July 8, '79
M. Connor.	60 Court street, Brooklyn.	July 8, '79
R. S. Cahoon.	263 Tompkins avenue, Brooklyn.	July 11, '79
A. N. Chapman.	3 Athenæum, Brooklyn.	July 11, '79
S. T. Cook.	284 Henry street, Brooklyn.	July 11, '79
Charles D. Cook.	133 Pacific street, Brooklyn.	July 11, '79
A. B. Carman.	23 Smith street, Brooklyn.	July 12, '79
C. J. Cooper.	52 Greene avenue, Brooklyn.	July 12, '79
G. A. Cooper.	635 Pacific street, Brooklyn.	July 14, '79
Alonzo Conrow.	382 Adelphi street, Brooklyn.	July 18, '79
W. A. Campbell.	Gold cor. Fulton streets, Brooklyn.	July 24, '79
C. P. Crandell.	508 Clinton street, Brooklyn.	July 25, '79
O. C. Cobb.	238 Washington street, Brooklyn.	July 28, '79
Harlow Carpenter.	403 Fulton street, Brooklyn.	July 28, '79
George P. Carman.	557 Atlantic avenue, Brooklyn.	July 29, '79
Francis Clement.	159 Macon street, Brooklyn.	July 31, '79

Name.	Office and P. O. Address.	Date of Registration
Thomas P. Carman.....	486 Fifth avenue, Brooklyn.....	Aug. 5, '79
Robert B. Cantrell.....	180 Macon street, Brooklyn.....	Aug. 19, '79
Edwin A. Dupignas.....	50 Prospect street, Brooklyn.....	July 9, '79
H. T. Darrow.....	263 Fulton street, Brooklyn.....	July 12, '79
John W. Dickinson.....	236 Seventeenth street, S. Brooklyn...	July 15, '79
F. W. Dolbeare.....	101 South Oxford street, Brooklyn.....	July 18, '79
E. H. Dickey.....	88 Fourth street, E. D., Brooklyn.....	July 19, '79
Cornelius N. Ditmas.....	257 Washington street, Brooklyn.....	July 29, '79
Fred J. Dixon.....	656 DeKalb avenue, Brooklyn.....	Aug. 7, '79
M. J. Dickerson.....	171 Carlton avenue, Brooklyn.....	Aug. 19, '79
J. E. English.....	45 Greene avenue, Brooklyn.....	July 10, '79
F. S. Emerson.....	137 Broadway, Brooklyn.....	July 21, '79
M. E. Elmendorf.....	51 Greene avenue, Brooklyn.....	Aug. 4, '79
Charles W. Ely.....	110 Prospect place, Brooklyn.....	Aug. 12, '79
L. J. Elliott.....	152 Clinton street, Brooklyn.....	Aug. 14, '79
David J. Fuller.....	156 Clinton street, Brooklyn.....	July 12, '79
H. B. Follett.....	81 Lafayette avenue, Brooklyn.....	July 14, '79
Theodore Frauendorf.....	110 Grand street, Brooklyn.....	July 15, '79
W. D. Fabyan.....	366 Clinton street, Brooklyn.....	July 15, '79
Elisha Fenn.....	199 Grand street, Brooklyn.....	July 22, '79
J. N. Farrar.....	15 Greene avenue, Brooklyn.....	July 28, '79
Thomas Fry.....	18 Clinton street, Brooklyn.....	July 29, '79
O. C. Forsyth, jr.....	807 Fulton avenue, Brooklyn.....	Aug. 1, '79
Theodore W. Farmer.....	394 Pacific street, ".....	Aug. 5, '79
George W. Fraim.....	393 Fulton street, ".....	Aug. 5, '79
Adolph Fruhauf.....	24 Wyckoff street, ".....	Aug. 7, '79
Lonedo Frazee.....	71 Lafayette avenue ".....	Aug. 11, '79
William Fishbough.....	829 DeKalb avenue, ".....	Aug. 18, '79
C. F. Graves.....	393 Jay street, ".....	July 8, '79
Charles B. Glover.....	191 Joralemon street, ".....	July 12, '79
August Grosch.....	229 Grand street, ".....	July 14, '79
Henry R. Griffin.....	675 Myrtle avenue, ".....	July 14, '79
Jacob Greder.....	154 Norman avenue, ".....	July 21, '79
A. D. Goddard.....	262 Dean street, ".....	Aug. 2, '79
J. P. Geran.....	94 Greene avenue, ".....	Aug. 5, '79
G. L. Gilbert.....	265 Fulton street, ".....	Aug. 18, '79
E. E. Goddard.....	64 Myrtle avenue, ".....	Aug. 18, '79
Marcus V. Gaff.....	32 Bedford avenue, ".....	Aug. 19, '79
H. S. Gould.....	463 Vanderbilt avenue, Brooklyn.....	Aug. 20, '79
O. E. Hill.....	160 Clinton street, ".....	July 5, '79
L. J. Hoyt.....	395 Fulton street, ".....	July 7, '79
F. W. Haviland.....	144 Lawrence street, ".....	July 8, '79
Thomas S. Henderson.....	310 Washington avenue, ".....	July 8, '79
F. S. Holmes.....	Henry cor. State streets, ".....	July 8, '79
Edwin Heald.....	415 Fulton street, ".....	July 14, '79
G. W. Heatley.....	24 Third avenue, ".....	July 17, '79
C. W. Hughes.....	305 Fuiton street, ".....	July 18, '79
C. W. Harreys.....	108 Fourth street, ".....	July 19, '79
Owen E. Houghton.....	47 Greene avenue, ".....	July 28, '79
William B. Hurd.....	32 Bedford avenue, ".....	Aug. 1, '79

Name.	Office and P. O. Address.	Date of Registration.
Robert T. Holley.....	65 Greene avenue, Brooklyn.....	Aug. 5, '79
E. M. Hughes.....	171 Lorimer street, ".....	Aug. 16, '79
William Jarvie, jr.....	152 Clinton street, ".....	July 7, '79
Frank F. Jones.....	176 Putnam avenue, ".....	July 8, '79
Henry E. Johnson.....	89 South Portland ave., ".....	July 8, '79
William H. Johnston.....	35 Fort Greene place, ".....	July 8, '79
H. D. Jennings.....	93 Atlantic street, ".....	Aug. 5, '79
T. J. King.....	39 Ormond place, ".....	July 8, '79
William W. King.....	205 Gates avenue, ".....	July 8, '79
J. M. King.....	643 Bedford avenue, ".....	July 9, '79
Lewis M. Kling.....	643 Bedford avenue, ".....	July 28, '79
William H. Klock.....	Howard House, East New York.....	Aug. 5, '79
E. A. Klock.....	Alabama avenue, East New York.....	Aug. 5, '79
Arthur S. King.....	64 Dean street, Brooklyn.....	Aug. 6, '79
George T. Kessler.....	269 Adams street, Brooklyn.....	Aug. 8, '79
George Kock.....	229 Grand street, ".....	Aug. 13, '79
Walter S. Lyon.....	643 Bedford avenue, ".....	July 9, '79
Charles J. Latto.....	16 Utica avenue, ".....	July 14, '79
Sylvester M. Lyon.....	94 Java street, ".....	July 15, '79
J. E. Lindstedt, jr.....	152 Clinton street, ".....	July 19, '79
Pantalian M. Leprohon.....	100 South Tenth street, Brooklyn.....	July 19, '79
Jacob Leich.....	194 Johnson avenue, ".....	July 29, '79
D. R. Longenecker.....	519 Fulton street, ".....	Aug. 1, '79
D. Horace Longenecker.....	519 Fulton street, ".....	Aug. 1, '79
William Latto.....	340 Fulton street, ".....	Aug. 13, '79
S. Q. Livingston.....	East New York.....	Aug. 19, '79
Jacob H. Moseley.....	143 Adelphi street, Brooklyn.....	July 7, '79
C. A. Marvin.....	148 Clinton street, ".....	July 7, '79
Charles E. Mensch.....	148 Clinton street, ".....	July 7, '79
Harry McMullen.....	289 Baltic street, ".....	July 8, '79
Isaac C. Monroe.....	191 Joralemon street, ".....	July 9, '79
H. G. Marshall.....	920 Fulton street, ".....	July 9, '79
S. M. McMurray.....	313 Sackett street, ".....	July 10, '79
E. H. Miller.....	284 Henry street, ".....	July 10, '79
James E. Miller.....	292 Henry street, ".....	July 10, '79
George L. Mason.....	133 Pacific street, ".....	July 10, '79
H. G. Mirick.....	156 Clinton street, ".....	July 10, '79
James A. Meura.....	289 Raymond street, ".....	July 12, '79
F. W. Moore.....	361 Clinton street, ".....	July 15, '79
Salmon G. McLean.....	124 Montague street, ".....	July 15, '79
Konrad Mussle.....	103 Even street, ".....	July 21, '79
Walter L. Mason.....	409 Bridge street, ".....	July 31, '79
Charles H. Moseley.....	199 Grand street, ".....	July 31, '79
Charles Moe.....	303 Fulton street, ".....	Aug. 2, '79
Thomas Manson.....	354 Gates avenue, ".....	Aug. 2, '79
George C. Mills.....	167 Hicks street, ".....	Aug. 14, '79
Fred Mugge.....	176 Columbia street, ".....	Aug. 18, '79
Johu Macdonald.....	120 Myrtle avenue, ".....	Aug. 18, '79
Washington Macdonald.....	120 Myrtle avenue, ".....	Aug. 18, '79
George J. Moore.....	281 Third avenue, ".....	Aug. 18, '79

Name.	Office and P. O. Address.	Date of Registration.
John J. Pitts.....	175 Atlantic avenue, Brooklyn.....	July 9, '79
John H. Perkins.....	124 Montague street, ".....	July 11, '79
W. C. Parks.....	107 Fourth street, ".....	July 12, '79
G. Prozeskey.....	41 McKibben street, ".....	July 16, '79
T. L. Perrin.....	319 Court street, ".....	July 24, '79
J. K. Powell.....	East New York, L. I.....	July 26, '79
Cornelius H. Post.....	Gold st. cor. Fulton ave., Brooklyn....	Aug. 6, '79
J. D. Philip.....	251 Court street, Brooklyn.....	Aug. 19, '79
T. A. Quinlan.....	463 Fulton street, ".....	July 23, '79
Edwin T. Rippier.....	224 Ninth street, ".....	July 15, '79
Louis H. Robinson.....	242 St. James place, Brooklyn.....	July 19, '79
Charles Rogers, jr.....	241 Pearl street, ".....	July 21, '79
James H. Race.....	366 Clinton street, ".....	July 21, '79
T. H. Rose.....	45 Eighth street, ".....	July 25, '79
G. F. Reese.....	45 Eighth street, ".....	Aug. 6, '79
William Robetson.....	103 ——— ".....	Aug. 15, '79
William A. Slaughter.....	89 North Portland avenue, Brooklyn....	July 9, '79
L. Chapman Smith.....	82 Park avenue, Brooklyn.....	July 9, '79
Daniel A. Smith.....	1 Bainbridge street, Brooklyn.....	July 11, '79
David S. Skinner.....	124 Montague street, Brooklyn.....	July 11, '79
T. W. Slater.....	State cor. Henry street, Brooklyn....	July 15, '79
William W. Starr.....	94 Java street, Brooklyn.....	July 15, '79
E. H. Stette.....	469 Vanderbilt avenue, Brooklyn.....	July 15, '79
M. W. Snyder.....	16 Smith street, Brooklyn.....	July 15, '79
H. C. Smith.....	1 Bainbridge street, Brooklyn.....	July 15, '79
George M. Slate.....	96 Java street, ".....	July 21, '79
Randolph M. Stratton....	199 Clinton street, ".....	July 21, '79
Kate Storey.....	13 Greene avenue, ".....	July 24, '79
V. Sherwood.....	417 Grand street, ".....	July 28, '79
Julius M. Stebbins.....	391 Pacific street, ".....	July 28, '79
Simon Schleicher.....	285 Grand street, ".....	July 30, '79
Oscar E. Snyder.....	23 Smith street, ".....	Aug. 6, '79
W. John Schildge.....	252 Warren street, ".....	Aug. 7, '79
William Shick.....	1363 Fulton street, ".....	Aug. 7, '79
Ludwig Semler.....	133 Pacific street, ".....	Aug. 11, '79
W. W. Smith.....	459 Myrtle avenue, ".....	Aug. 11, '79
H. W. Schreiber.....	581 Broadway, ".....	Aug. 14, '79
C. A. Scott.....	71 Duffield street, ".....	Aug. 18, '79
W. T. Shannon.....	94 Greene avenue, ".....	Aug. 19, '79
William D. Snyder.....	16 Smith street, ".....	Aug. 19, '79
G. H. Smith.....	88 Lafayette street, ".....	Aug. 20, '79
W. Irving Thayer.....	197 Amity street, ".....	July 8, '79
George E. Travis.....	320 Grand street, ".....	July 15, '79
Venie Tait.....	15 Greene avenue, ".....	July 29, '79
William C. Tracy.....	506 Court street, ".....	Aug. 9, '79
George L. Thatcher.....	333 Adelphi street, ".....	July 15, '79
F. LeRoy Tetamore.....	454 Marcy avenue, ".....	July 15, '79
C. E. Talman.....	179 Remsen street, ".....	July 28, '79
M. L. Thompson.....	382 Adelphi street, ".....	Aug. 5, '79
Samuel H. Twitchell.....	27 Bedford avenue, ".....	Aug. 15, '79

Name.	Office and P. O. Address.	Date of Registration.
Henry M. Tetamore.....	306 Lexington avenue, "	Aug. 20, '79
F. T. Van Woort.....	369 Manhattan avenue, "	July 12, '79
Francisco Vala.....	229 Grand street, "	Aug. 6, '79
J. Jay Villers.....	348 Ninth street, South Brooklyn.....	Aug. 6, '79
John C. Wyman.....	50 Greene avenue, Brooklyn.....	July 9, '79
George W. White.....	311 Thirteenth street, Brooklyn.....	July 9, '79
Leonard G. Wilder.....	60 Fort Greene place, "	July 9, '79
Philander Webb, jr.....	454 Nostrand avenue, "	July 12, '79
Samuel Wait.....	Lefferts cor. Classon street, Brooklyn.....	July 15, '79
Fayette C. Walker.....	156 Clinton street, Brooklyn.....	July 15, '79
Edward B. Wicht.....	194 Seventh street, "	July 25, '79
L. P. Willis.....	226 Washington street, Brooklyn.....	July 28, '79
George B. Ward.....	33 Fifth avenue, "	July 28, '79
Eugene Walker.....	463 Fulton street, "	July 30, '79
E. Clifford Wadsworth.....	23 Bedford avenue, "	Aug. 1, '79
William C. Wren.....	39 Lee avenue, "	Aug. 11, '79
George Waldron.....	60 Sand street, "	Aug. 13, '79
E. B. Wheat.....	1401 Prospect place, "	Aug. 15, '79
William H. Young.....	511 Fulton street, "	July 30, '79

Lewis County.

Name.	Office and P. O. Address.	Date of Registration.
H. P. Chambers.....	Lowville.....	July 19, '79
J. Carroll House.....	66 State street, Lowville.....	July 26, '79
Wayne L. Collins.....	Turin.....	July 29, '79
W. G. Smith.....	Copenhagen.....	Aug. 9, '79
Henry Felshaw.....	Constableville.....	Aug. 12, '79
H. Frank Felshaw.....	Constableville.....	Aug. 12, '79
Jason L. Noyes.....	Diana.....	Aug. 12, '79

Livingston County.

Name.	Office and P. O. Address.	Date of Registration.
F. E. Howard.....	Geneseo.....	July 24, '79
J. A. Chase.....	Geneseo.....	July 25, '79
A. La Boyteaux.....	Dansville.....	July 28, '79
John Kinney.....	Dansville.....	July 28, '79
W. H. Noble.....	Mount Morris.....	July 28, '79
F. H. Cole.....	Geneseo.....	Aug. 4, '79
A. J. Kingsley.....	Nunda.....	Aug. 4, '79
B. T. Briggs.....	Livonia Station.....	Aug. 6, '79
Charles Mills.....	Lima.....	Aug. 11, '79
T. S. Belden.....	Avon.....	Aug. 13, '79
E. Salmon.....	Lima.....	Aug. 13, '79
George D. Greig.....	Nunda.....	Aug. 15, '79
A. P. Burkhart.....	Dansville.....	Aug. 15, '79
E. A. Clopp.....	Livonia Station.....	Aug. 16, '79
W. H. Buell.....	Mount Morris.....	Aug. 18, '79
George H. Mathews.....	Hemlock Lake.....	Aug. 18, '79
T. D. Conner.....	Springwater.....	Aug. 18, '79

Name	Office and P. O. Address.	Date of Registration.
F. D. Brown.....	Mount Morris.....	Aug. 18, '79
A. L. Bailey.....	Geneseo.....	Aug. 18, '79

Madison County.

Name.	Office and P. O. Address.	Date of Registration.
Alexander M. Holmes....	Morrisville	July 9, '79
C. E. Dunton.....	Cazenovia	July 15, '79
J. F. Phelps.....	Cazenovia	July 18, '79
C. A. Smith.....	Oneida.....	July 21, '79
James L. Gardiner.....	Hamilton.....	July 26, '79
W. R. Brownell.....	Hamilton.....	July 26, '79
A. E. Cherry.....	Oneida.....	July 29, '79
Leverett H. Rice.....	Oneida.....	July 31, '79
E. F. Saunders.....	Brookfield.....	Aug. 2, '79
Albert E. Root.....	Hamilton.....	Aug. 4, '79
Leonard F. Dunn.....	Oneida Community.....	Aug. 4, '79
Edward M. Carey.....	Morrisville	Aug. 4, '79
J. H. Beebe.....	De Ruyter.....	Aug. 4, '79
W. S. Fish.....	Earlville.....	Aug. 11, '79
Charles M. White.....	Georgetown	Aug. 12, '79
J. W. T. Rice.....	Cazenovia	Aug. 12, '79
L. F. Sherwood.....	Chittenango.....	Aug. 14, '79
Albert R. Vail.....	Chittenango.....	Aug. 14, '79
J. E. Ostrander.....	Oneida.....	Aug. 14, '79
Frank W. Tuttle.....	Oneida Community.....	Aug. 15, '79
E. Francis Hutchins.....	Oneida Community.....	Aug. 15, '79
A. V. Bardeen.....	Hamilton	Aug. 16, '79
C. B. Crandall.....	Brookfield	Aug. 18, '79
A. H. Niles.....	Oneida.....	Aug. 18, '79
N. S. Smith.....	Canastota.....	Aug. 18, '79

Monroe County.

Name.	Office and P. O. Address.	Date of Registration.
E. C. Arnold.....	53 Savannah street, Rochester.....	Aug. 8, '79
Edward B. Audross.....	Brockport	Aug. 8, '79
H. H. Buck.....	First Nat. Bank building, Brockport...	July 24, '79
E. A. Burke.....	84 State street, Rochester.....	July 25, '79
Homer Belding.....	45 East Main street, Rochester.....	Aug. 12, '79
E. Warren Belding.....	133 East Main street, Rochester.....	Aug. 12, '79
J. B. Barry.....	Hamlin Center.....	Aug. 19, '79
Charles M. Clark.....	Brockport	July 28, '79
B. W. Cook.....	Brockport	Aug. 19, '79
Charles A. Davis.....	50 State street, Rochester.....	Aug. 9, '79
Richard J. Decker.....	53 Main street, Rochester.....	Aug. 18, '79
George C. Decker.....	47 Main street, Rochester.....	Aug. 18, '79
Charles H. Ellsworth.....	43 State street, Rochester.....	July 28, '79
John E. Embury.....	6 State street, Rochester.....	Aug. 1, '79
J. Grandin English.....	25 North Fitzhugh street, Rochester....	Aug. 18, '79

Name.	Office and P. O. Address.	Date of Registration.
Frank French.....	58 State street, Rochester.....	Aug. 4, '79
C. E. Gaskill.....	50 State street, Rochester.....	Aug. 9, '79
R. H. Hofheinz.....	53 East Main street, Rochester.....	Aug. 18, '79
B. Frank La Salle.....	20 State street, Rochester.....	July 29, '79
J. Edw. Line.....	Rochester.....	Aug. 11, '79
H. N. Lowe.....	1 Main street, Rochester.....	Aug. 12, '79
Maurice Leyden.....	Rochester.....	Aug. 12, '79
Charles Mills.....	11 Masonic block, Rochester.....	July 28, '79
Ansel A. Morgan.....	175 Powers' block, Rochester.....	July 28, '79
Henry S. Miller.....	25 North Fitzhugh street, Rochester.....	July 28, '79
Philander Macy.....	118 State street, Rochester.....	July 30, '79
M. Frank McMullen.....	57 ¹ / ₂ Cady street, Rochester.....	July 30, '79
Daniel C. McNaughton.....	Mumford.....	Aug. 13, '79
T. A. Proctor.....	14 State street, Rochester.....	July 1, '79
Josephus Requa.....	10 Masonic block, Rochester.....	Aug. 1, '79
W. E. Royce.....	Brockport.....	Aug. 4, '79
John A. Rice.....	Spencerport.....	Aug. 7, '79
E. A. Royce.....	Brockport.....	Aug. 13, '79
F. H. Rice.....	Spencerport.....	Aug. 14, '79
Austin Rice.....	Spencerport.....	Aug. 15, '79
P. H. Smith.....	192 Powers' block, Rochester.....	July 26, '79
F. B. Shearer.....	192 Powers' block, Rochester.....	July 26, '79
Fred H. Sanford.....	43 State street, Rochester.....	July 28, '79
Robert Salter.....	78 State street, Rochester.....	July 29, '79
J. E. Sanford.....	14 State street, Rochester.....	July 30, '79
T. B. Sanford.....	14 State street, Rochester.....	July 30, '79
B. F. Schuyler.....	53 East Main street, Rochester.....	Aug. 16, '79
W. A. Trescott.....	Fairport.....	Aug. 5, '79
A. T. Teall, jr.....	21 Tracy park, Rochester.....	Aug. 11, '79
Fred S. Southwick.....	53 Broadway, Rochester.....	Aug. 11, '79
Eri F. Wilson.....	185 Powers' block, Rochester.....	July 25, '79
J. S. Walter.....	33 Smith's block, Rochester.....	Aug. 4, '79
L. D. Walter.....	33 Smith's block, Rochester.....	Aug. 4, '79
J. Leslie Weller.....	Honeoye Falls.....	Aug. 12, '79
Seymour G. Wood.....	89 East Main street, Rochester.....	Aug. 12, '79
E. M. Wright.....	45 East Main street, Rochester.....	Aug. 12, '79
George G. Wanzer.....	14, 16 and 18 W. Main st., Rochester.....	Aug. 10, '79

Montgomery County.

Name.	Office and P. O. Address.	Date of Registration.
Albert Ayres.....	Fort Plain.....	June 30, '79
Everett D. Atwell.....	Canajoharie.....	Aug. 9, '79
J. K. Burnett.....	Fort Plain.....	Aug. 1, '79
Emanuel E. De Graff.....	Amsterdam.....	Aug. 7, '79
Levi Klock.....	Fonda.....	July 26, '79
Dayton S. Kellogg.....	Fort Plain.....	Aug. 18, '79
William E. Snyder.....	176 Main street, Amsterdam.....	July 22, '79
John L. Sigsbee.....	Rural Grove.....	July 31, '79
Carlton J. Spofford.....	St. Johnsville.....	Aug. 9, '79

Name.	Office and P. O. Address.	Date of Registration.
Peter Sloan.....	Canajoharie.....	Aug. 9, '79
Charles H. Tilton.....	Amsterdam.....	Aug. 18, '79

New York County.

Name.	Office and P. O. Address.*	Date of Registration.
W. E. Andrews.....	Tremont Station, N. Y. Center.....	July 9, '79
John G. Ambler.....	25 West Twenty-third street.....	" 9, '79
J. G. Ambler, jr.....	25 West Twenty-third street.....	" 9, '79
James A. Annable.....	313 Sixth avenue.....	" 11, '79
William H. Anderson.....	270 Grand street.....	" 11, '79
A. Barrett Ackerman.....	111 Lexington avenue.....	" 14, '79
E. H. Allen.....	584 Lexington avenue.....	" 15, '79
N. H. Allen.....	584 Lexington avenue.....	" 15, '79
C. A. Alden.....	59 West Fiftieth street.....	" 15, '79
Frank Abbott.....	22 West Fortieth street.....	" 15, '79
H. Adler.....	417 Grand street.....	" 17, '79
H. D. Allen.....	1497 Broadway.....	" 18, '79
John P. Adams.....	41 West Thirty-fifth street.....	" 19, '79
O. J. Allen.....	203 East 126th street.....	" 21, '79
David Ackerman.....	310 West Eighteenth street.....	" 21, '79
W. H. Atkinson.....	41 East Ninth street.....	" 22, '79
Antonio N. Arredondo.....	173 Third avenue.....	" 24, '79
Charles D. Allen.....	7 West Thirty-third street.....	" 24, '79
Charles L. Andrews.....	210 East Thirty-fourth street.....	" 25, '79
Albert Agramonte.....	128 West Thirty-fourth street.....	" 26, '79
John O. Arrowsmith.....	167 East 127th street.....	" 30, '79
Edmond C. Albert.....	142 West Thirty-fourth street.....	" 31, '79
J. W. Allen, jr.....	33 West Forty-seventh street.....	" 31, '79
John Allen.....	7 West Thirty-third street.....	" 31, '79
Arthur Averhoff.....	351 East Twentieth street.....	Aug. 2, '79
Joseph Amberry.....	148 East Fourth street.....	Aug. 4, '79
George S. Allan.....	51 West Thirty-seventh street.....	Aug. 7, '79
H. Albert.....	142 West Thirty-fourth street.....	Aug. 11, '79
William M. Adler.....	417 Grand street.....	Aug. 15, '79
Mary Adler.....	417 Grand street.....	Aug. 15, '79
James C. Abrams.....	154 West Thirty-fourth street.....	Aug. 15, '79
William H. Allen.....	18 West Eleventh street.....	Aug. 19, '79
Conrad Baecht.....	74 Essex street.....	July 10, '79
William Bertsch.....	466 Canal street.....	" 11, '79
William Bergmann.....	49 Third avenue.....	" 11, '79
Charles L. Browne.....	29 East Twentieth street.....	" 11, '79
Edward A. Beals.....	164 East Eighty-third street.....	" 14, '79
William Beecher.....	44 Third avenue.....	" 14, '79
William E. Burk.....	111 Lexington avenue.....	" 14, '79
George J. Baab.....	164 East Eighty-third street.....	" 14, '79
M. L. Ballard.....	309 East Twenty-fifth street.....	" 14, '79
W. Elliker Battam.....		" 15, '79
B. F. Batchelde.....	23 West Twenty-third street.....	" 15, '79
Charles A. Barrett.....	32 East Twenty-eighth street.....	" 16, '79

Name.	Office and P. O. Address.*	Date of Registration.
F. L. Browne.....	339 Sixth avenue.....	July 16, '79
Charles D. Brown.....	251 West Twenty-third street.....	" 17, '79
Herbert S. Baylis.....	64 West Forty-sixth street.....	" 17, '79
J. G. Brigiotti.....	33 East Nineteenth street.....	" 17, '79
M. A. Broughton.....	153 Third avenue.....	" 17, '79
E. Barbel.....	417 Hudson street.....	" 18, '79
Canfield Barlow.....	320 Bleeker street.....	" 18, '79
E. F. Barnes.....	7 West Thirty-third street.....	" 18, '79
M. Beardsley.....	175 Sixth avenue.....	" 19, '79
Winfield S. Bedell.....	896 Eighth avenue.....	" 19, '79
N. Barraneo.....	308 East Ninth street.....	" 19, '79
G. V. Brito.....	224 East Thirty-fourth street.....	" 21, '79
Albert Bodine.....	36 West Forty-sixth street.....	" 21, '79
E. H. Bailey.....	381 Bleecker street.....	" 21, '79
Thomas Burgh.....	304 West Twenty-eighth street.....	" 22, '79
George A. Bradford.....	New Brighton, Staten Island.....	" 22, '79
William C. Burt.....	32 East Twenty-eighth street.....	" 22, '79
William C. Bennett.....	84 West Twelfth street.....	" 24, '79
James Bowers, jr.....	308 West Thirty-second street.....	" 26, '79
Lyon Berhold.....	216 Sixth avenue.....	" 26, '79
N. Malm Berkwith.....	125 West Forty-second street.....	" 28, '79
William A. Bronson.....	8 East Thirty-fourth street.....	" 30, '79
E. A. Bogue.....	29 East Twentieth street.....	" 30, '79
J. Adams Bishop.....	32 West Thirty-sixth street.....	" 31, '79
Sanford C. Barnum.....	69 West Forty-fifth street.....	Aug. 1, '79
Thomas H. Burnes.....	48 Great Jones street.....	Aug. 1, '79
David R. Bohter.....	177th street cor. Locust avenue.....	Aug. 4, '79
Harry L. Bunnier.....	30 Cooper Institute.....	Aug. 5, '79
John Brown.....	251 West Twenty-third street.....	Aug. 7, '79
Eugene Buevogelle.....	324 Ninth avenue.....	Aug. 8, '79
Henry F. Blakeney.....	53 Sixth avenue.....	Aug. 11, '79
A. W. Brown.....	3 Great Jones street.....	Aug. 12, '79
W. H. Barnum.....	127 West 142d street.....	Aug. 12, '79
Frederick Binniker.....	401 Grand street.....	Aug. 15, '79
James E. Blaurelt.....	353 Sixth avenue.....	Aug. 15, '79
Marshall S. Beebe.....	105 East Tenth street.....	Aug. 16, '79
C. F. W. Bödecker.....	73 West Forty-fifth street.....	Aug. 18, '79
Edward B. Briggs.....	14 Barclay street.....	Aug. 18, '79
W. Brushing.....	164 Allen street.....	Aug. 19, '79
W. E. Blakenee.....	728 Third avenue.....	Aug. 19, '79
F. C. Barber.....	471 Hudson street.....	Aug. 19, '79
F. A. Braumis.....	50 West Thirty-fifth street.....	Aug. 19, '79
M. A. Blankman.....	265 West Thirty-eighth street.....	Aug. 19, '79
Joseph S. Conway.....	222 East Forty-fifth street.....	July 10, '79
G. Q. Colton.....	19 Cooper Institute.....	" 10, '79
Monteith E. Close.....	48 East Thirty-first street.....	" 12, '79
H. D. Creary.....	99 Milton street.....	" 14, '79
Morris L. Chaim.....	30 Cooper Institute.....	" 15, '79
T. J. Cronk.....	350 Sixth avenue.....	" 17, '79
William Carr.....	35 West Forty-sixth street.....	" 17, '79

Name.	Office and P. O. Address.*	Date of Registration.
George Clay.	26 West Forty-fifth street.	July 21, '79
Thomas Clare.	379 Eighth avenue.	" 21, '79
S. Cleland.	165 East 125th street.	" 22, '79
F. M. Clark.	673 Eighth avenue.	" 22, '79
M. H. Campbell.	49 East Twelfth street.	" 23, '79
Joseph W. Clowes.	14 East Forty-ninth street.	" 31, '79
S. A. Craige.	68 East Ninth street.	Aug. 2, '79
James H. Cafferty.	173 Sixth avenue.	Aug. 2, '79
E. C. Carrol.	427 Eighth avenue.	Aug. 2, '79
J. T. Clarke.	147 West Tenth street.	Aug. 5, '79
Samuel Covell.	23 East Twenty-fourth street.	Aug. 5, '79
John Carr.	73 West 126th street.	Aug. 5, '79
Augustus J. Colby.	201 West Twenty-second street.	Aug. 9, '79
Simcon L. Close.	48 East Thirty-first street.	Aug. 9, '79
L. J. Crygier.	349 West Thirty-second street.	Aug. 11, '79
James A. Christian.	399 Eighth avenue.	Aug. 12, '79
Alexander C. Castle.	54 Washington square.	Aug. 15, '79
R. P. Cooke.	29 East Twenty-sixth street.	Aug. 16, '79
James W. Campbell.	223 Sixth avenue.	Aug. 18, '79
John W. Carlos.	628 Sixth avenue.	Aug. 19, '79
Z. A. Close.	48 East Thirty-first street.	Aug. 19, '79
Edward Corbin.	60 West Seventeenth street.	Aug. 19, '79
A. Rust Cuyler.	37 West Thirty-first street.	Aug. 19, '79
G. H. Dickey.	320 West Thirtieth street.	July 9, '79
William C. Deane.	111 East Fifty-fourth street.	" 9, '79
Beyayeel H. Dupignau.	139 Bowery.	" 9, '79
Frederick F. Durand.	11 Waverly place.	" 9, '79
G. Allen Defendorf.	233 East Thirtieth street.	" 11, '79
Wilson F. Defendorf.	1530 Third avenue.	" 11, '79
Charles H. DeLamater, jr.	519 West Twenty-third street.	" 11, '79
Frederick B. Dixon.	23 West Thirty-third street.	" 11, '79
R. G. Durkin.	361 Sixth avenue.	" 14, '79
C. Dubar.	51 West Ninth street.	" 16, '79
Eugene H. Durand.	11 Waverly place.	" 16, '79
Charles T. Durkin.	361 Sixth avenue.	" 16, '79
Cano Dix.	192 Second avenue.	" 21, '79
C. Degenbat.	123 Avenue A.	" 21, '79
Conrad Dursheng.	195 Broad street.	" 21, '79
D. L. Durra.	986 Second avenue.	" 22, '79
Charles H. Dressel.	Tremont.	" 22, '79
C. A. DuBois.	879 Seventh avenue.	" 22, '79
Wheeler K. Doty.	715 Sixth avenue.	" 24, '79
D. M. Davidson.	36 West Forty-seventh street.	" 25, '79
Miles H. Dodge.	20 East Thirty-third street.	" 26, '79
William A. Dixon.	160 Lexington avenue.	" 31, '79
Joseph A. Dixon.	160 Lexington avenue.	" 31, '79
William H. Dobin.	135 East Thirteenth street.	Aug. 1, '79
James E. Dexter.	8 East Thirty-fourth street.	Aug. 2, '79
Ed. R. DeWolfe.	1497 Broadway.	Aug. 5, '79
Henry M. Dodge.	15 West Twentieth street.	Aug. 5, '79

Name.	Office and P. O. Address.*	Date of Registration.
J. Smith Dodge, jr	15 West Twentieth street.	Aug. 5, '79
Philippine Dieffenbach	162 West Twenty-third street.	Aug. 6, '79
J. Smith Dodge	15 West Twentieth street.	Aug. 6, '79
W. F. Davenport	1241 West Thirty-ninth street.	Aug. 6, '79
Joseph Dodin	135 East Thirteenth street.	Aug. 9, '79
Servalon Dayton	391 Canal street.	Aug. 11, '79
H. J. Desaxe	351 Sixth avenue	Aug. 11, '79
J. H. Downes	14 Barclay street.	Aug. 18, '79
James B. Day	33 West Forty-seventh street.	Aug. 18, '79
Henry Ermentrant	257 East Fourth street.	July 14, '79
Paul Eisemann	198 Allen street.	July 15, '79
G. M. Eddy	37 West Thirty-first street.	July 17, '79
George Evans	353 Sixth avenue.	Aug. 4, '79
Mayron Ettetstein	304 East Thirty-seventh street.	Aug. 6, '79
Henry I. Ewing	154 West Forty-eighth street.	Aug. 8, '79
G. J. Eugtelon	28 East Twenty-first street.	Aug. 12, '79
Ph. W. Ekart	9 Avenue C.	Aug. 13, '79
N. Edwards	146th street cor. Third avenue.	Aug. 18, '79
N. W. Filon	62 New Bowery.	July 9, '79
W. Fricke	249 Bowery.	July 10, '79
Edward Fagan	361 Sixth avenue.	July 11, '79
W. E. Francis	35 West Forty-sixth street.	July 12, '79
Charles E. Francis	33 West Forty-seventh street.	July 12, '79
George N. Fischer	546 Sixth avenue.	July 15, '79
C. I. Farrington	387 Canal street.	July 16, '79
Thomas A. Fletcher	11 East Forty-third street.	July 22, '79
Emil Fuerth	159 Bowery.	July 28, '79
John H. Feindel	1 Great Jones street.	July 29, '79
Chauncey P. Fitch	108 West Forty-second street.	Aug. 2, '79
G. W. Frazer	217 East 114th street.	Aug. 11, '79
Gowfried Griens	189 Rivington street.	July 8, '79
August Graf	231 East Houston street.	July 9, '79
Alphonse Gourdin	627 Eighth avenue.	July 9, '79
Charles H. Gifford	43 East Twentieth street.	July 10, '79
Robert Grob	227 Chrystie street.	July 10, '79
Louis Grasse	7 West Thirty-third street.	July 14, '79
W. G. Gill	52 Bedford street.	July 14, '79
F. J. Gubner	345 Hudson street.	July 14, '79
Kasson C. Gibson	68 West Thirty-fifth street.	July 14, '79
S. Gerstel	399 Grand street.	July 15, '79
Lyman S. King	321 East 121st street.	July 15, '79
T. Q. Ganet	22 West Tenth street.	July 17, '79
John R. Griffiths	377 Sixth avenue.	July 17, '79
Morris Brian Gunning	34 East Twenty-first street.	July 17, '79
Clifford H. Griebel	135 East Twelfth street.	July 18, '79
Louis Georgens	22 Avenue B.	July 18, '79
Alfred Goodell	142 East Twenty-seventh street.	July 22, '79
H. Ginheault	37 West Ninth street.	July 23, '79
William Griffin	243 West Seventeenth street.	Aug. 2, '79
Oxford P. Goodell	142 East Twenty-seventh street.	Aug. 4, '79

Name.	Office and P. O. Address.*	Date of Registration.
Charles B. Gibbs.....	504 Third avenue.....	Aug. 5, '79
Charles P. Grout.....	.63 West Thirty-fifth street.....	Aug. 7, '79
Charles Grosch.....	.610 East Thirteenth street.....	Aug. 11, '79
Max Gross.....	1273 Third avenue.....	Aug. 15, '79
William V. Garty.....	527 East Sixth street.....	Aug. 16, '79
George H. Glenney.....	.40 West Twenty-fifth street.....	Aug. 18, '79
Alfred James Gordon.....	.15 West Twentieth street.....	Aug. 18, '79
Emil O. Guttmann.....	.685 Lexington avenue.....	Aug. 19, '79
A. R. Gage.....	.47 East Twenty-ninth street.....	Aug. 19, '79
C. W. Hoblitzell.....	.312 Spring street.....	July 8, '79
William Hackett.....	.27 West Thirty-first street.....	July 9, '79
Finis Hubbard.....	.67 Liberty street.....	July 10, '79
Philip Hoffman.....	.164 Ludlow street.....	July 10, '79
George Elias Hawes.....	.11 Waverly place.....	July 10, '79
John B. Hawes.....	.11 Waverly place.....	July 10, '79
Arthur F. Hawes.....	.11 Waverly place.....	July 10, '79
Caroline D. Hayward.....	.173 Sixth avenue.....	July 12, '79
R. W. Hutchinson.....	.2336 Third avenue.....	July 12, '79
C. L. Humphrey.....	.387 Canal street.....	July 12, '79
Engbert I. Hill.....	.381 Sixth avenue.....	July 14, '79
Bernard Hess.....	.297 East Tenth street.....	July 14, '79
Bertha Hess.....	.297 East Tenth street.....	July 14, '79
T. W. Hurtle.....	.424 West Forty-seventh street.....	July 15, '79
Charles W. Hill.....	.57 East Ninth street.....	July 16, '79
Charles L. Hildreth.....	.225 West Forty-ninth street.....	July 17, '79
J. F. P. Hodson.....	.11 West Thirty-ninth street.....	July 18, '79
William G. Hiller.....	.212 West Tenth street.....	July 18, '79
Charles F. Hill.....	.57 East Ninth street.....	July 19, '79
Charles Hubbard.....	.35 West Forty-sixth street.....	July 19, '79
F. S. Howard.....	.41 West Thirty-fifth street.....	July 19, '79
P. Hething.....	.561 Tenth avenue.....	July 22, '79
Ezra P. Hoyt.....	.19 West Thirty-ninth street.....	July 23, '79
W. W. Hurd.....	.139 East Eighteenth street.....	July 23, '79
Samuel Hassell.....	.4 West Twenty-eighth street.....	July 25, '79
Edward Hussy.....	.128 West Thirty-fourth street.....	July 26, '79
W. G. Hoag.....	.11 East Forty-third street.....	July 26, '79
G. O. Holyendorff.....	.80 East Fourth street.....	July 26, '79
G. W. Hazelton.....	.115 East Twenty-fourth street.....	July 28, '79
Ferdinand Heindsmann.....	.77 Third avenue.....	July 31, '79
J. Morgan Howe.....	.34 West Thirty-fifth street.....	July 31, '79
Adolph Hartmann.....	.123 Forsyth street.....	July 31, '79
Jackson Hubbell.....	.53 West Twenty-eighth street.....	July 31, '79
John H. Higgins.....	.28 West Twenty-sixth street.....	Aug. 4, '79
Charles W. Hiller.....	.331 Madison avenue.....	Aug. 6, '79
C. E. Hubbard.....	.358 West Twenty-eighth street.....	Aug. 7, '79
F. Hasbrouck.....	.63 West Thirty-fifth street.....	Aug. 7, '79
Samuel F. Howland.....	.39 West Forty-second street.....	Aug. 7, '79
Charles S. Goodman.....	.303 Sixth avenue.....	Aug. 7, '79
A. C. Hawes.....	.18 East Seventeenth street.....	Aug. 11, '79
Samuel A. Hopkins.....	.11 Waverly place.....	Aug. 12, '79

Name.	Office and P. O. Address.*	Date of Registration.
William P. Hill.....	4 West Twenty-eighth street.....	Aug. 15, '79
George J. Harting.....	106 Seventh street.....	Aug. 15, '79
R. S. Haldenty.....	77 West Eleventh street.....	Aug. 16, '79
T. A. Hawes.....	18 East Seventeenth street.....	Aug. 18, '79
W. S. Huntington.....	138 East Fifty-ninth street.....	Aug. 19, '79
A. P. Herrill.....	32 West Thirty-third street.....	Aug. 19, '79
George Innis.....	50 West Eleventh street.....	Aug. 2, '79
William Jareekie.....	249 East Fiftieth street.....	July 14, '79
Oliver A. Jarvis.....	111 West Forty-seventh street.....	July 21, '79
A. Johnson.....	111 East Twelfth street.....	July 22, '79
L. W. Judson.....	27 West Thirty-fifth street.....	July 31, '79
Elenore Jehl.....	225 Bowery.....	July 31, '79
W. S. Jaffray.....	1438 Broadway.....	Aug. 18, '79
Joseph M. Jaffray.....	131 West Thirty-fifth street.....	Aug. 19, '79
Charles O. Kimball.....	11 Waverly place.....	July 16, '79
Joseph Kuhn.....	209 East Second street.....	July 17, '79
Norman W. Kingsley.....	25 West Twenty-seventh street.....	July 17, '79
Thomas P. Kenney.....	535 Eighth avenue and 133d street.....	July 21, '79
William Kallman.....	71 Orchard street.....	July 28, '79
John A. Kelley.....	198 Sixth avenue.....	July 29, '79
Charles H. Keech.....	50 Third avenue.....	Aug. 6, '79
John C. Kenedy.....	597 Sixth avenue.....	Aug. 7, '79
James G. Koelble.....	185 East Third street.....	Aug. 11, '79
Philip J. Koony.....	1 Great Jones street.....	Aug. 12, '79
Daniel Keys.....	53 East Twenty-ninth street.....	Aug. 12, '79
Tobin E. Kimerim.....	939 First avenue.....	Aug. 15, '79
J. C. Kennedy.....	319 Sixth avenue.....	Aug. 15, '79
S. Kuki.....	76 Third street.....	Aug. 19, '79
Augustus S. Kidder.....	104 West Thirty-fourth street.....	Aug. 19, '79
Robert M. Kalloch.....	44 West Forty-sixth street.....	Aug. 19, '79
Louis C. Leroy.....	226 Fifth street.....	July 9, '79
William Lyddon.....	Alexander avenue and 143d street.....	July 11, '79
John A. Lamson.....	265 West Forty-second street.....	July 11, '79
Gustav F. Le Bean.....	139 East Fifty-third street.....	July 14, '79
Charles E. Latimer.....	102 West Forty-eighth street.....	July 15, '79
Frederick H. Lee.....	23 Perry street.....	July 15, '79
B. Langtry.....	151 Bowery.....	July 16, '79
J. S. Latimer.....	102 West Forty-eighth street.....	July 17, '79
William T. LaRoche.....	67 West Fifty-fourth street.....	July 17, '79
J. Bond Lettig.....	9 East Seventeenth street.....	July 19, '79
Alfred A. Legree.....	4 " Twenty-eighth street.....	July 23, '79
James M. Lake.....	260 Grand street.....	July 24, '79
Samuel C. Lovejoy.....	2332 Fourth avenue.....	July 28, '79
Joseph Lewenberg.....	20 West Twenty-second street.....	July 30, '79
W. H. Lyon.....	9 East Twenty-second street.....	July 30, '79
Philip B. LaRoche.....	29 West Forty-second street.....	July 31, '79
Hermann Lambert.....	77 East Eighth street.....	July 31, '79
H. Lenrberg.....	157 East Sixty-first street.....	July 31, '79
Theodore Ledyard.....	25 West Twenty-seventh street.....	July 31, '79
Henry F. Lockwood.....	1272 Broadway.....	Aug. 5, '79

Name.	Office and P. O. Address.*	Date of Registration.
D. J. Lalleo.....	264½ Bowery.....	Aug. 6, '79
Christopher S. Longstreet.....	122 West Twenty-second street.....	Aug. 9, '79
J. B. Lawrence.....	14 East 129th street.....	Aug. 11, '79
George L. Lamson.....	265 West Forty-second street.....	Aug. 13, '79
Joseph G. Landrock.....	159 Bowery.....	Aug. 16, '79
W. B. Latson.....	262 West Forty-third street.....	Aug. 18, '79
Albert Lewenburg.....	157 East Sixty-first street.....	Aug. 18, '79
Jonah T. Lovejoy.....	2332 Fourth avenue.....	Aug. 19, '79
John H. Meyer.....	20 West Thirty-second street.....	July 14, '79
I. L. Miller.....	135 Canal street.....	" 14, '79
P. Henry Murphy.....	38 West Thirty-second street.....	" 14, '79
N. McCollon.....	52 Bedford street.....	" 15, '79
A. W. Meader.....	262 Sixth avenue.....	" 15, '79
J. W. Moore.....	179 Waverly place.....	" 15, '79
John Mink.....	300 East Ninth street.....	" 15, '79
G. B. Mersereau.....	32 East Twenty-eighth street.....	" 16, '79
Edward L. Meader.....	60 West Seventeenth street.....	" 17, '79
Charles Merritt.....	25 West Twenty-eighth street.....	" 17, '79
George H. Modemann.....	502 Third avenue.....	" 18, '79
Frank Moas.....	29 East Twentieth street.....	" 19, '79
Daniel E. Morse.....	157 East Seventy-seventh street.....	" 22, '79
Samuel S. Morse.....	157 East Seventy-seventh street.....	" 22, '79
John C. Miller.....	115 East Twenty-fourth street.....	" 23, '79
William B. Middleton.....	Tremont.....	" 23, '79
Marie Louise Modemann.....	7 New York Sun building.....	" 24, '79
Alonzo B. Milier.....	33 West Forty-seventh street.....	" 25, '79
William C. Michaelis.....	80 East Fourth street.....	" 26, '79
Edward H. Mason.....	44 East Twenty-third street.....	" 31, '79
George S. Meigs.....	115 West Thirty-fourth street.....	Aug. 4, '79
Samuel Munsters.....	1012 Third avenue.....	Aug. 5, '79
A. R. Martin.....	264 Sixth avenue.....	Aug. 5, '79
I. Gardner Morey.....	737 Sixth avenue.....	Aug. 6, '79
Elizabeth Morey.....	737 Sixth avenue.....	Aug. 6, '79
Charles N. Moore.....	280 Sixth avenue.....	Aug. 9, '79
Joseph Miller.....	74 Suffolk street.....	Aug. 11, '79
M. M. Maltby.....	33 East Twenty-fourth street.....	Aug. 12, '79
Henry Mewes.....	258 East Houston street.....	Aug. 12, '79
George A. Mark.....	227 East 116th street.....	Aug. 16, '79
Ph. Meise.....	68 West Third street.....	Aug. 16, '79
G. McNeil.....	100 West Forty-fifth street.....	Aug. 16, '79
Charles McCarthy.....	28 West Twenty-seventh street.....	Aug. 18, '79
Charles Miller.....	331 Madison avenue.....	Aug. 18, '79
John T. Metcalf.....	18 West Eleventh street.....	Aug. 19, '79
Catherine Modeman.....	502 Third avenue.....	Aug. 19, '79
Spencer M. Nash.....	23 West Thirty-third street.....	July 3, '79
Charles A. Nash.....	31 West Thirty-first street.....	" 8, '79
J. Neil, jr.....	2030 Third avenue.....	" 10, '79
Charles Nette.....	203 East Thirty-fourth street.....	" 12, '79
Alonzo Nickerson.....	223 Sixth avenue.....	" 17, '79
J. B. Newhough.....	128 West Thirty-fourth street.....	" 19, '79

Name.	Office and P. O. Address.*	Date of Registration.
M. J. Nolan.....	387 Canal street.....	July 26, '79
A. L. Northrop.....	44 West Forty-sixth street.....	Aug. 12, '79
Henry S. Nash.....	10 West Twenty-ninth street.....	Aug. 18, '79
W. Newbrough.....	379 Eighth avenue.....	Aug. 19, '79
William Egan.....	31 East Twelfth street.....	July 30, '79
Max L. Obriecht.....	363 East Sixty-second street.....	July 9, '79
Thomas O. Oliver.....	17 West Ninth street.....	" 10, '79
George J. Otterbourg.....	128 East Seventieth street.....	" 12, '79
Frank M. Odell.....	7 West Thirty-eighth street.....	" 16, '79
Adam Ochhof.....	58 Jackson street.....	Aug. 8, '79
Edwin L. Oldis.....	399 Eighth avenue.....	Aug. 12, '79
Henry Odell.....	125th street cor. Third avenue.....	Aug. 15, '79
Antonio B. Preino.....	46 West Thirty-sixth street.....	July 9, '79
Sherman B. Pine.....	11 Waverly place.....	" 10, '79
George H. Petrie.....	111 East Thirtieth street.....	" 11, '79
Jacob Prass.....	433 First avenue.....	" 11, '79
F. E. Pratt.....	329 West Twenty-third street.....	" 14, '79
August L. Peters.....	147 East Houston street.....	" 14, '79
G. W. Price.....	600 Sixth avenue.....	" 15, '79
John B. Palmer.....	179 Bowery.....	" 16, '79
A. Preterre.....	159 Bowery.....	" 18, '79
E. B. Post.....	481 Eighth avenue.....	" 25, '79
Guillermo Vargas Paredes.....	230 Washington street.....	" 25, '79
Bertrand J. Perry.....	66 Madison avenue.....	Aug. 1, '79
Charles Post.....	30 Cooper Union.....	Aug. 4, '79
Valentine Pressler.....	105 East Sixtieth street.....	Aug. 4, '79
Stephen E. Preterre.....	200 East Fifteenth street.....	Aug. 7, '79
Pierre Eugene Preterre.....	215 West Thirty-fourth street.....	Aug. 9, '79
Stogell C. Parsons.....	207 Henry street.....	Aug. 9, '79
Thomas J. Price.....	52 West Twenty-fourth street.....	Aug. 9, '79
W. B. Parker.....	309 Madison avenue.....	Aug. 9, '79
R. P. Perry.....	54 West Thirty-third street.....	Aug. 11, '79
Fred Poulson.....	256 Henry street.....	Aug. 14, '79
W. E. Preston.....	73 Bowery.....	Aug. 18, '79
Eugene Palmer.....	27 West Thirty-fourth street.....	Aug. 18, '79
S. G. Perry.....	10 East Thirty-fourth street.....	Aug. 19, '79
George H. Perine.....	116 West Forty-second street.....	Aug. 19, '79
Delos Palmer.....	159 West Forty-fifth street.....	Aug. 19, '79
Charles F. Rabell.....	379 Sixth avenue.....	July 10, '79
S. Randel.....	104 Chatham street.....	" 14, '79
R. S. Randel.....	104 Chatham street.....	" 14, '79
David S. Randall.....	104 Chatham street.....	" 14, '79
W. G. Rabell.....	97 Vandam street.....	" 15, '79
A. J. Reinhold.....	East 140th street.....	" 16, '79
D. K. Reinhold.....	East 140th street.....	" 16, '79
Gustav Romer.....	279 Bowery.....	" 16, '79
R. G. Reynolds.....	27 West Thirty-first street.....	" 16, '79
R. H. Russell.....	466 Canal street.....	" 16, '79
William M. Reynolds.....	47 West Forty-second street.....	" 18, '79
Julius P. Rosenberg.....	986 Second avenue.....	" 22, '79

Name.	Office and P. O. Address.*	Date of Registration.
George H. Rich.....	29 West Forty-second street.....	" 25, '79
W. Rausch.....	196 Tenth street cor. Second avenue....	July 25, '79
Moses Rynear.....	200 West Fifty-third street.....	July 28, '79
Raphael Reio.....	162 Second avenue.....	July 29, '79
Robert M. Reynolds.....	51 West Thirty-seventh street.....	July 30, '79
E. H. Raymond.....	8 East Thirty-fourth street.....	July 31, '79
J. B. Rich.....	12 East Twenty-second street.....	Aug. 2, '79
W. P. Richards.....	134 East Twenty-eighth street.....	Aug. 4, '79
Thomas S. Ryder.....	428 Grand street.....	Aug. 5, '79
George L. Regner.....	246 East Sixtieth street.....	Aug. 8, '79
Berkley F. Read.....	331 West Twenty-seventh street.....	Aug. 9, '79
A. Eugene Raisbeck.....	77 " Eleventh street.....	Aug. 14, '79
James A. Reed.....	272 Sixth avenue.....	Aug. 16, '79
Andrew M. Russell.....	154 West Thirty-fourth street.....	Aug. 18, '79
Charles Sell.....	14 Eighth avenue.....	June 28, '79
H. H. Sissver.....	312 Spring street.....	July 8, '79
Edson W. Smith.....	68 West Thirty-fifth street.....	July 9, '79
L. G. Slocum.....	19 Cooper Institute.....	July 9, '79
A. Steiger.....	323 East Fourteenth street.....	July 9, '79
B. F. Sill.....	14 Eighth avenue.....	July 10, '79
Louis Sehl.....	225 Bowery.....	July 14, '79
Benjamin T. Smith.....	329 West Twenty-third street.....	July 14, '79
John C. Sharp.....	305 East Tenth street.....	July 15, '79
Nathan Sanders.....	151 Bowery.....	July 16, '79
J. Emile Serre.....	8 West Thirty-seventh street.....	July 17, '79
William A. Sharpe.....	175 Sixth avenue.....	July 19, '79
Domingo M. Sabater.....	61 West Forty-second street.....	July 19, '79
William Scranton.....	46 Market street.....	July 21, '79
Ernst Spandel.....	258 East Houston street.....	July 21, '79
Philip Frank Schmitt.....	205 Spring street.....	July 21, '79
Charles K. Scranton.....	46 Market street.....	July 22, '79
George F. Schaffer.....	44 West Forty-fifth street.....	July 23, '79
Frederick J. Starr.....	358 Lexington avenue.....	July 24, '79
Ira Starr.....	445 Grand street.....	July 24, '79
Otto F. Shaefer.....	59 East Fourth street.....	July 25, '79
Anson O. Stevens.....	143 West Forty-first street.....	July 25, '79
John B. P. Stanley.....	155 Bowery.....	July 25, '79
Juan San Pedro.....	351 East Twentieth street.....	July 26, '79
W. J. Stanley.....	445 Grand street.....	July 28, '79
J. H. Smith.....	179 Bowery.....	July 28, '79
O. Stanfield.....	111 Madison avenue.....	July 28, '79
Charles H. Shepherd.....	247 East Fifty-first street.....	July 31, '79
Benjamin W. Smith.....	45 East Twenty-third street.....	July 31, '79
S. C. Spooner.....	13 West Thirteenth street.....	July 31, '79
Louis Stahl, jr.....	411 Eighth avenue.....	Aug. 1, '79
Gustav Sperling.....	25 Allen street.....	Aug. 4, '79
F. Milton Smith.....	24 East 126th street.....	Aug. 4, '79
W. J. Stewart.....	373 West Twenty-third street.....	Aug. 4, '79
G. W. Sweeney.....	6 East Fourteenth street.....	Aug. 4, '79
Mortimer A. Smith.....	411 Eighth avenue.....	Aug. 5, '79

Name.	Office and P. O. Address.*	Date of Registration.
George M. Snow	280 Sixth avenue	Aug. 6, '79
Frederick L. Secord	48 West Twenty-sixth street	Aug. 7, '79
George W. Stevens	723 Eighth avenue	Aug. 8, '79
Edwardo Sabater	61 West Forty-second street	Aug. 8, '79
John C. Sproul	124 East Fifty-eighth street	Aug. 12, '79
Henry P. Smith	159 Bowery	Aug. 15, '79
S. D. Stewart	400 West Twenty-ninth street	Aug. 15, '79
Lewis A. Shahan	230 " Twenty-second street	Aug. 16, '79
Edward Smith	63 " Thirty-fifth street	Aug. 16, '79
George F. Schaffer, jr.	628 Sixth avenue	Aug. 18, '79
Salmon Skinner	14 Barclay street	Aug. 18, '79
G. Saegeler	159 Elizabeth street	Aug. 18, '79
Z. T. Sailer	53 West Twenty-fourth street	Aug. 19, '79
George W. Trunick	130 Eighth avenue	July 10, '79
Manuel V. Toledo	79 West Eleventh street	July 25, '79
W. D. Tenison	45 East Twenty-eighth street	July 28, '79
Dudley Tenney	44 West Twenty-ninth street	July 30, '79
Bushrod M. Terwelliger	27 " Eleventh street	Aug. 9, '79
Fred D. Tomlinson	155 Bowery	Aug. 13, '79
E. Todd	47 East Twenty-ninth street	Aug. 18, '79
Charles Velter	154 Second street	July 9, '79
W. R. Vail	262 West Fifty-second street	July 10, '79
George W. VanBuskirk	159 Broadway	July 10, '79
Theodore VanEuper	309 Bowery	July 10, '79
George Viall	27 West Thirty-first street	July 12, '79
George D. VanZandt	23 Second avenue	July 14, '79
C. del Villar	335 East Sixteenth street	July 17, '79
James T. Vredenburg	132 East Twenty-ninth street	July 18, '79
Volkert VanKleck	264 Sixth avenue	July 19, '79
G. Voigt	120 Eldridge street	July 21, '79
William Vandenberg	489 First avenue	July 31, '79
Henry de Vries	162 West Twenty-third street	Aug. 6, '79
S. M. Vredenburg	162 East 128th street	Aug. 16, '79
Daniel A. Williams	369 Ninth avenue	July 9, '79
T. E. Westbau	174 West Twenty-third street	July 9, '79
M. F. Westbau	174 " Twenty-third street	July 10, '79
A. F. Winkel	59 East Fifty-ninth street	July 12, '79
Isaac Wolff	159 Bowery	July 12, '79
Fred G. Wilkes	37 West Thirty-first street	July 12, '79
J. F. Wardwell	7 " Thirty-eighth street	July 15, '79
C. S. Wardwell	7 " Thirty-eighth street	July 16, '79
S. E. Wolf	100 East Fifty-eighth street	July 17, '79
William Wallace Walker	67 West Ninth street	July 17, '79
Slocum Wright	50 " Thirty-third street	July 22, '79
C. Wacker	388 Bowery	July 23, '79
George Willis	36 East Thirty-third street	July 28, '79
John Weltlaufer	171 East Thirty-third street	July 29, '79
Daniel W. Williamson	53 Seventh avenue	July 29, '79
Louis M. Warner	411 Eighth avenue	July 31, '79
M. de Courcy White	411 Eighth avenue	Aug. 1, '79

Name.	Office and P. O. Address.*	Date of Registration.
Theodore A. Wadsworth.	42 West Thirty-third street.	Aug. 5, '79
C. A. Woodward.	361 Fifth avenue.	Aug. 6, '79
William E. Wells.	30 West Twenty-seventh street.	Aug. 9, '79
Thomas G. Wait.	45 East Twenty-third street.	Aug. 13, '79
George A. Wilson.	63 West Thirty-fifth street.	Aug. 16, '79
R. H. L. Waters	158 East Fifty-sixth street.	Aug. 18, '79
George W. Weld.	13 West Twenty-sixth street.	Aug. 18, '79
B. L. Wait.	262 Sixth avenue.	Aug. 19, '79
James E. Williams.	504 Third avenue.	Aug. 19, '79
John R. Wallace.	48 West Twenty-sixth street.	Aug. 19, '79
C. A. Zuickl.	N. Y. College of Dentistry.	July 14, '79
Robert G. Zeichman.	I Great Jones street.	July 31, '79

*New York city, unless otherwise stated.

Niagara County.

Name.	Office and P. O. Address.	Date of Registration.
William S. McCallum.	Suspension Bridge.	July 14, '79
Lawrence W. Bristol.	Lockport	July 16, '79
J. P. Mix.	Lockport	July 16, '79
W. D. McEwen.	Suspension Bridge.	July 26, '79
Jacob Hiller.	Lockport	July 31, '79
Charles Watts, jr.	Lockport	July 26, '79
Charles H. Shirley.	Suspension Bridge.	July 26, '79
S. L. Chase.	Lockport	July 26, '79
Lafayette Balcom.	Lockport	July 31, '79
Homer J. Balcom.	Lockport	July 31, '79
Henry P. Booth.	Gasport	July 31, '79
A. Judson Allen.	Lockport	July 31, '79
O. L. Broughton.	Wilson	Aug. 7, '79
E. C. Fulier.	Pendleton	Aug. 11, '79
F. J. Moyer.	Lockport	Aug. 11, '79
G. D. Moyer.	Sanborn.	Aug. 11, '79
D. A. Baker.	Ransomville.	Aug. 11, '79
H. L. Cleveland.	Lockport	Aug. 11, '79
D. H. Gilmer.	Lockport	Aug. 12, '79
W. J. Huntley.	Lockport	Aug. 12, '79
Luther T. Dickinson.	Lockport	Aug. 14, '79
R. G. Wright.	Tonawanda.	Aug. 14, '79
Jedediah Gaskill.	Lockport	Aug. 15, '79
George Chase.	Lockport	Aug. 15, '79
A. C. Crysler.	Niagara Falls.	Aug. 16, '79
J. B. Gates.	Niagara Falls.	Aug. 16, '79
William Barrett.	Suspension Bridge.	Aug. 18, '79
John Martin Card.	Middleport	Aug. 18, '79
Frank F. Moyer.	Lockport	Aug. 19, '79
S. A. Beattie.	Lockport	Aug. 22, '79
Henry H. Gantz.	Lockport	July 31, '79

Oneida County.

Name.	Office and P. O. Address.	Date of Registration.
L. W. Rogers.....	Utica	July 16, '79
E. L. Swartwout.....	Utica	July 16, '79
Charles B. Foster.....	Utica	July 17, '79
A. N. Priest.....	Utica	July 18, '79
E. Jay Klinck.....	Utica	July 18, '79
George H. Lloyd.....	Rome.....	July 19, '79
Willis A. Budlong.....	Clinton	July 21, '79
D. James Vedder.....	Utica	July 25, '79
E. Beckwith.....	Westmoreland.....	July 25, '79
S. E. McDougall.....	Oriskany Falls.....	July 28, '79
A. Salisbury.....	Prospect	July 28, '79
Charles E. Fraser, jr.....	Lee Center.....	July 28, '79
G. E. Cheney.....	Rome.....	July 28, '79
J. A. Priest	Utica	July 28, '79
H. W. Tompkins.....	Clayville.....	July 28, '79
Charles W. Shapley.....	Utica	July 29, '79
Floyd L. Danforth.....	Utica	July 30, '79
Charles L. Robinson.....	Utica	July 30, '79
S. F. Tremain.....	Rome.....	July 30, '79
H. A. Steber.....	Utica	July 31, '79
William O. Laird.....	Stittsville.....	July 31, '79
A. D. Ayer.....	Clinton	July 31, '79
C. H. Woodward.....	Rome.....	Aug. 1, '79
H. Grayston.....	Utica	Aug. 1, '79
J. O. Dohn.....	Utica	Aug. 1, '79
George F. Horsey.....	Utica	Aug. 2, '79
M. B. Stetson.....	Clinton	Aug. 2, '79
L. M. Stetson.....	Clinton	Aug. 2, '79
J. M. Barton.....	Rome.....	Aug. 2, '79
George Cornelius.....	Utica	Aug. 4, '79
J. W. Martin.....	Rome.....	Aug. 4, '79
G. W. Cornelius.....	Utica	Aug. 4, '79
W. G. Dodge.....	Trenton Falls.....	Aug. 4, '79
Hermann Lubonosky.....	Utica	Aug. 4, '79
A. T. Van Valkenburgh.....	Camden.....	Aug. 4, '79
R. V. Hawley.....	Utica	Aug. 5, '79
W. W. Blackman.....	Waterville	Aug. 6, '79
J. P. Beckwith.....	Westmoreland.....	Aug. 6, '79
M. J. Evans.....	Utica	Aug. 7, '79
B. A. Shapley.....	Utica	Aug. 7, '79
G. T. De Roe.....	Utica	Aug. 7, '79
C. A. Willard.....	Camden.....	Aug. 8, '79
James H. Mayo (by att'y).....	Western.....	Aug. 10, '79
N. B. Hatch.....	Rome.....	Aug. 11, '79
G. A. Hemingway.....	N. Y. Mills.....	Aug. 11, '79
J. P. Bradish.....	Whitesboro	Aug. 11, '79
A. B. Wells.....	Holland Patent.....	Aug. 11, '79
Theodore H. Bradish.....	Utica	Aug. 11, '79

Name.	Office and P. O. Address.	Date of Registration.
J. P. Beardsley.....	Clinton	Aug. 11, '79
C. H. Bennett.....	Waterville.....	Aug. 12, '79
A. B. Cowles.....	Rome.....	Aug. 12, '79
B. F. Mallery.....	Utica.....	Aug. 14, '79
A. Retter.....	Utica.....	Aug. 14, '79
G. H. Hardisty.....	Utica.....	Aug. 14, '79
J. A. Cowles.....	Rome.....	Aug. 14, '79
C. B. Watkins.....	Trenton.....	Aug. 15, '79
John Vedder.....	Utica.....	Aug. 15, '79
George P. Bridgman.....	Boonville.....	Aug. 15, '79
William A. Prentice.....	Utica.....	Aug. 16, '79
Arthur S. Roberts.....	Rome.....	Aug. 16, '79
Henry Dexter.....	Sanquoit.....	Aug. 18, '79
George K. Seavey.....	Boonville.....	Aug. 18, '79
Thomas Toomer.....	Utica.....	Aug. 18, '79
C. M. Hitchcock.....	Utica.....	Aug. 18, '79
W. Waldo.....	Waterville.....	Aug. 18, '79
B. S. Brown.....	Boonville.....	Aug. 19, '79

Onondaga County.

Name.	Office and P. O. Address.	Date of Registration.
Charles Barnes.....	8 Wieting block, Syracuse.....	July 25, '79
B. H. Billington.....	Railroad cor. S. Salina st., Syracuse...	Aug. 18, '79
Edgar C. Barnum.....	8 and 9 Pike block, Syracuse.....	Aug. 19, '79
James E. Cummings, jr.	19 and 20 White building, Syracuse...	Aug. 2, '79
Charles L. Chandler.....	1 Granger block, Syracuse...	Aug. 5, '79
Charles E. Cherry.....	28 West Fayette street, Syracuse.....	Aug. 11, '79
H. W. F. Cady.....	338 Mulberry street, Syracuse.....	Aug. 12, '79
John W. Doyle.....	Manlius.....	July 28, '79
William H. Dwinelle.....	Tully.....	" 28, '79
A. J. Dallas, jr.....	14 East Jefferson street, Syracuse.....	" 29, '79
Squire Chase Dayan.....	131 1/2 East Genesee street, Syracuse...	Aug. 5, '79
George L. Elliott.....	8 Weiting block, Syracuse.....	July 25, '79
J. W. C. Gould.....	2 Hendricks block, Syracuse.....	" 29, '79
J. G. Golich.....	2 Hendricks block, Syracuse.....	" 29, '79
C. A. Hitchcock.....	60 South Salina street, Syracuse.....	" 25, '79
George L. Harris.....	14 Genesee street, Skaneateles.....	" 30, '79
T. E. Hitchcock.....	60 South Salina street, Syracuse.....	Aug. 7, '79
J. E. Hiltz.....	Baldwinsville	Aug. 18, '79
A. P. Ingerson.....	22 Munroe block, Syracuse.....	July 28, '79
E. J. Ingerson.....	22 Munroe block, Syracuse.....	Aug. 6, '79
Thomas A. Kennedy.....	8 Wieting block, Syracuse.....	Aug. 6, '79
W. F. Klock.....	1 Myers block, Syracuse.....	Aug. 15, '79
J. B. Kelsey.....	Borodine	Aug. 18, '79
J. F. Lord.....	Montgomery cor. Fayette st., Syracuse.	Aug. 9, '79
William N. Landon.....	52 South Salina street, Syracuse.....	Aug. 16, '79
S. G. Martin.....	14 East Jefferson street, Syracuse.....	July 29, '79
M. M. McDonald.....	Munroe block, Syracuse.....	" 30, '79
John S. Marshall.....	60 Warren street, Syracuse.....	" 30, '79

Name.	Office and P. O. Address.	Date of Registration.
A. H. Matson.....	19 and 20 White block, Syracuse.....	Aug. 7, '79
Francis D. Nellis.....	27 North Salina street, Syracuse.....	July 25, '79
George E. Nearing.....	8 and 9 Pike block, Syracuse.....	Aug. 4, '79
E. B. Nettleton.....	Syracuse.....	Aug. 14, '79
O. E. Nettleton.....	Syracuse.....	Aug. 14, '79
Lucius A. Nearing.....	8 and 9 Pike block, Syracuse.....	Aug. 15, '79
George W. O'Bleunis.....	81 East Jefferson street, Syracuse.....	July 28, '79
W. C. Orcutt.....	Jordan.....	Aug. 18, '79
W. W. Perkins.....	Baldwinsville.....	July 28, '79
H. J. Patten.....	351 Park street, Syracuse.....	" 29, '79
S. B. Palmer.....	39½ Warren street, Syracuse.....	" 29, '79
F. M. Rood.....	Baldwinsville.....	Aug. 18, '79
D. D. Smith.....	1 Pike block, Syracuse.....	July 28, '79
F. G. Tibbitts.....	Baker block, Fayetteville.....	Aug. 8, '79
Herman E. Van Horne.....	Liverpool.....	July 26, '79
Martin L. Vanbuskirk.....	28 Lemon street, Syracuse.....	Aug. 11, '76
Benjamin F. Wright.....	Elbridge.....	July 26, '76
W. W. Williamson.....	3 Pike block, Syracuse.....	" 29, '79
John E. Walden.....	349 North Salina street, Syracuse.....	Aug. 6, '79
Erwin B. Warner.....	Jordan.....	Aug. 18, '79

Ontario County.

Name.	Office and P. O. Address.	Date of Registration.
Benevolent Stevens.....	Canandaigua.....	July 16, '79
Cornelius J. Andrus.....	Canandaigua.....	" 21, '79
James R. Snow.....	Phelps.....	" 28, '79
A. G. Coleman.....	Canandaigua.....	" 30, '79
R. S. Hays.....	East Bloomfield.....	Aug. 6, '79
C. F. Booth.....	Canandaigua.....	Aug. 7, '79
M. A. Carman.....	Canandaigua.....	Aug. 8, '79
L. R. Reynolds.....	Geneva.....	Aug. 9, '79
J. M. Buchanan.....	Clifton Springs.....	Aug. 9, '79
F. W. Edmunds.....	Victor.....	Aug. 11, '79
J. S. Furnur.....	Canandaigua.....	Aug. 12, '79
Henry Reed.....	Geneva.....	Aug. 14, '79
M. D. Fisher.....	Allen's Hill.....	Aug. 14, '79
E. Huntington.....	Geneva.....	Aug. 15, '79
William Arnold.....	Honeoye.....	Aug. 18, '79
C. S. Pleasants.....	Canandaigua.....	Aug. 18, '79
Z. F. Knapp.....	Naples.....	Aug. 19, '79

Orange County.

Name.	Office and P. O. Address.	Date of Registration.
Charles F. Allan.....	43 Montgomery street, Newburgh.....	July 14, '79
T. M. Barnes.....	Main cor. South street, Middletown... "	" 22, '79
Simeon T. Barrett.....	Port Jervis.....	" 28, '79
Gordon B. Barnes.....	Shawangunt.....	Aug. 16, '79
G. W. Crandell.....	78 Water street, Newburgh.....	July 16, '79

Name.	Office and P. O. Address.	Date of Registration.
D. W. Deming	79 West Main street, Goshen	July 19, '79
E. W. Deyo	Purdy Hall, Goshen	July 27, '79
John Dunn	51 Colden street, Newburgh	Aug. 12, '79
C. S. Dewey	South street, Middletown	Aug. 19, '79
W. S. Elliott	48 Church street, Goshen	July 18, '79
A. Freeman Foote	Main cor. South street, Middletown	July 22, '79
Frederick A. Friend	35 North street, Middletown	Aug. 19, '79
James H. Holly	Main street, Warwick	July 22, '79
D. T. Hill	Cornwall	Aug. 12, '79
A. J. P. Hedges	80 Water street, Newburgh	Aug. 15, '79
M. M. Hedges	80 Water street, Newburgh	Aug. 15, '79
Isaac B. Hedges	118 Western avenue, Newburgh	Aug. 15, '79
John P. Hehl	Main cor. South street, Middletown	Aug. 19, '79
D. L. Kidd	29 High street, Newburgh	July 16, '79
Willett Kidd	29 Water street, Newburgh	Aug. 13, '79
Charles L'Hommedieu	Main cor. South street, Middletown	Aug. 19, '79
James J. Mills	Front street, Port Jervis	July 21, '79
Thad Mead	Pike street, Port Jervis	Aug. 13, '79
Edmund Murray	5 West street, Goshen	Aug. 14, '79
T. C. Royce	South cor. Main street, Middletown	July 21, '79
Townsend V. Roe	Warwick	July 22, '79
Ermina Roe	Warwick	July 22, '79
R. A. Sinsabaugh	Middletown	July 18, '79
Peter M. Stansbrough	Newburgh	July 22, '79
William M. Stansbrough	Newburgh	July 22, '79
L. S. Straw	Water cor. Second street, Newburgh	July 24, '79
S. B. Straw	Water cor. Second street, Newburgh	July 24, '79
Lewis P. Stansbrough	Newburgh	July 31, '79
Arthur M. Sweezy	Main cor. South street, Middletown	Aug. 1, '79
William Saunders	West Point	Aug. 9, '79
Rufus G. Stansbrough	51 Colden street, Newburgh	Aug. 15, '79
George H. Thompson	252 Montgomery street, Newburgh	July 24, '79
Edward B. Tuttle	Unionville	July 25, '79
E. R. Varcoe	Walden	Aug. 6, '79
James R. White	116 Western avenue, Newburgh	July 22, '79
W. S. Youmans	83 Pike street, Port Jervis	Aug. 7, '79

Orleans County.

Name.	Office and P. O. Address.	Date of Registration.
Abiel Bowen	53 Main street, Medina	Aug. 12, '79
Everett M. Baker	54 Main street, Medina	Aug. 15, '79
S. C. Brownell	58 Main street, Medina	Aug. 15, '79
E. L. Cushing	Barre Center	July 26, '79
C. S. Cady	Holley	Aug. 18, '79
Eugene M. Crabb	Clarendon	Aug. 18, '79
Horace B. Dolittle	Main cor. Bank street, Albion	Aug. 18, '79
J. K. Eckert	Medina	Aug. 18, '79
John B. Fuller	East side Public Square, Holley	Aug. 19, '79
Elbridge J. Merrick	Gaines	July 25, '79

Name.	Office and P. O. Address.	Date of Registration.
J. L. Northrup.....	54½ Main street, Albion.....	Aug. 5, '79
B. F. Newton.....	Holley.....	Aug. 11, '79
John A. Straight.....	Main cor. West Bank street, Albion...	July 16, '79
D. E. Spoor.....	Gettys street, Holley.....	July 28, '79
C. F. Smith.....	53 Main street, Medina.....	Aug. 18, '79
Stephen Tabor.....	Millville.....	Aug. 5, '79
R. B. Wright.....	Lyndonville.....	Aug. 18, '79

Oswego County.

Name.	Office and P. O. Address.	Date of Registration.
Warren Allen.....	103 East Fourth street, Oswego.....	July 17, '79
Samuel Avery.....	Phoenix.....	Aug. 18, '79
C. D. Barney.....	Parish.....	July 24, '79
E. C. Bronson.....	208 West First street, Oswego.....	Aug. 4, '79
F. J. Bradner.....	Pulaski.....	July 11, '79
E. D. Bates.....	Central Squate.....	Aug. 19, '79
N. W. Bates.....	Central Square.....	Aug. 19, '79
D. B. Cooley.....	174 West First street, Oswego.....	Aug. 4, '79
J. I. Curtis.....	Oneida street, Fulton.....	Aug. 18, '79
Herbert H. Dobson.....	Mexico.....	Aug. 8, '79
James F. Davis.....	Orwell.....	Aug. 14, '79
Clayton F. Davis.....	Orwell.....	Aug. 14, '79
Cornelius Edick.....	Parish.....	Aug. 12, '79
George V. Emens.....	Fulton.....	Aug. 14, '79
D. S. Goldey.....	West First cor. Bridge street, Oswego..	July 31, '79
William P. Grannis.....	7 and 8 Arcade, Oswego.....	Aug. 7, '79
John Holmes.....	Mexico.....	Aug. 5, '79
Myer Jacobs.....	1 and 2 Arcade, Oswego.....	Aug. 1, '79
F. W. Low.....	Pulaski.....	Aug. 15, '79
D. W. Lewis.....	Sandy Creek.....	Aug. 18, '79
F. E. Milliken.....	East Bridge street, Oswego.....	July 19, '79
W. H. Palmer.....	Mexico.....	Aug. 16, '79
G. V. N. Relyea.....	Oswego.....	Aug. 7, '79
A. S. Smith.....	East First cor. Bridge street, Oswego..	July 19, '79
Albert A. Sullivan.....	163 West First street, Oswego.....	July 22, '79
Milton Selleck.....	14 West Fifth street, Oswego.....	Aug. 7, '79
Henry Twitchell.....	Pulaski.....	Aug. 9, '79
I. S. Thompson.....	Sandy Creek.....	Aug. 19, '79
C. H. Van Vleck.....	East First cor. Bridge street.....	July 31, '79
E. M. Wells.....	Fulton.....	Aug. 5, '79
Thomas Walker.....	East Seventh street, Oswego.....	Aug. 6, '79

Otsego County.

Name.	Office and P. O. Address.	Date of Registration.
Datus E. Siver.....	Cooperstown.....	July 21, '79
Chester I. Wadsworth.....	Cooperstown.....	July 28, '79
George H. Knapp.....	Roseboom.....	Aug. 1, '79
William L. Hill.....	Otega.....	Aug. 1, '79

Name.	Office and P. O. Address.	Date of Registration.
A. S. Knapp.....	Milford	Aug. 1, '79
Daniel P. Van Court.....	Fly Creek.....	Aug. 1, '79
E. J. Morgan.....	Oneonta.....	Aug. 5, '79
C. W. Bronson.....	Cherry Valley.....	Aug. 7, '79
Birney Goodenough.....	Worcester	Aug. 7, '79
Eliab P. Byram.....	Cooperstown.....	Aug. 8, '79
Eugene T. Newell.....	Hartwick.....	Aug. 11, '79
James H. Jenks.....	Hartwick.....	Aug. 11, '76
Charles H. McDonald.....	East Worcester.....	Aug. 13, '79
Robert Luther.....	Milford.....	Aug. 13, '79
L. E. Ireland.....	Oneonta.....	Aug. 14, '79
W. T. Bailey.....	Richfield Springs.....	Aug. 16, '79
Myron D. Jewell.....	Richfield Springs.....	Aug. 18, '79
L. D. Bassett.....	Morris	Aug. 18, '79
G. B. Peters.....	Oneonta.....	Aug. 18, '79
A. L. Spencer.....	Unadilla.....	Aug. 18, '79
H. H. Barnard.....	Milford.....	Aug. 18, '79
J. Henry Follett.....	Schenevus	Aug. 19, '79
H. C. St. John.....	Leonardsville	Aug. 19, '79
George A. Rockwell.....	Gilbertsville	Aug. 19, '79

Putnam County.

Name.	Office and P. O. Address.	Date of Registration.
C. F. Dean.....	Carmel.....	Aug. 2, '79
F. H. French.....	Cold Spring.....	Aug. 18, '79
Henry F. Miller.....	Brewsters.....	Aug. 11, '79
David S. Merritt.....	Carmel.....	Aug. 16, '79
John B. Merritt.....	Carmel.....	Aug. 16, '79
James H. Merritt.....	Carmel.....	Aug. 16, '79
Frank M. Robinson.....	Patterson	Aug. 15, '79

Queens County.

Name.	Office and P. O. Address.	Date of Registration.
F. L. Allyn, jr.....	Woodhaven.....	Aug. 2, '79
Clarence L. Bisbee.....	Rockville Center.....	July 21, '79
E. Parmly Brown.....	Flushing.....	Aug. 19, '79
P. L. Hull.....	Jamaica.....	July 19, '79
William Horsfield.....	Flushing.....	July 18, '79
A. F. King.....	Flushing.....	July 28, '79
John F. McAuliff.....	Glen Cove.....	July 21, '79
William D. Orr.....	Port Washington.....	July 21, '79
F. E. Pratt.....	College Point.....	Aug. 7, '79
Edward F. Rogers.....	Mannetto Hill.....	Aug. 20, '79
Charles H. Stevens.....	Jamaica	July 29, '79
D. E. Smith.....	Hempstead	July 21, '79
C. H. Smith.....	Jamaica	July 22, '79
Edwin A. Smith.....	Corona	July 22, '79
H. S. Turner.....	105 Front street, Hempstead.....	Aug. 9, '79

Name.	Office and P. O. Address.	Date of Registration.
T. J. Thomas.....	Glen Cove.....	Aug. 19, '79
J. N. Van Dowator.....	Flushing.....	Aug. 12, '79
Charles F. Weitzel.....	Borden avenue, Long Island City.....	Aug. 15, '79
Adolph W. Wuzerd.....	College Point.....	Aug. 19, '79

Rensselaer County.

Name.	Office and P. O. Address.	Date of Registration.
O. R. Young.....	24 Third street, Troy.....	July 26, '79
J. H. Carnell.....	24 Third street, Troy.....	July 26, '79
A. M. Wright.....	24 Third street, Troy.....	July 26, '79
L. C. Wheeler.....	55½ Fourth street, Troy.....	July 26, '79
S. D. French.....	41 Second street, Troy.....	July 28, '79
M. V. Spencer.....	2 Hall building, Troy.....	July 29, '79
Horace G. Nelson.....	45 Grand Division street, Troy.....	July 30, '79
Charles H. Boynton.....	Main street, Hoosick Falls.....	July 30, '79
D. A. Caulkins.....	117 Second street, Troy.....	July 31, '79
A. Dyer.....	Congress Hall, Troy.....	Aug. 4, '79
H. A. Hall.....	92 Third street, Troy.....	Aug. 4, '79
William A. Kested.....	Castleton.....	Aug. 4, '79
S. P. Welch.....	573 State street, Lansingburgh.....	Aug. 5, '79
William Newcomb.....	Johnsonville.....	Aug. 5, '79
J. S. Carmichael.....	91 Fifth street, Troy.....	Aug. 6, '79
C. A. Conlin.....	91 Fifth street, Troy.....	Aug. 6, '79
D. Newcomb.....	551 State street, Lansingburgh.....	Aug. 6, '79
H. H. Young.....	359 Broadway, Troy.....	Aug. 6, '79
R. Seymour.....	64 Grand Division street, Troy.....	Aug. 7, '79
Edgar J. Young.....	106 Third street, Troy.....	Aug. 8, '79
F. F. Hawkins.....	106 Third street, Troy.....	Aug. 8, '79
H. G. Button.....	Harts Falls.....	Aug. 9, '79
J. H. Purdy.....	577 First street, Troy.....	Aug. 9, '79
Robert J. Hornbrook.....	Harts Falls.....	Aug. 12, '79
Grove B. Young.....	259 Broadway, Troy.....	Aug. 12, '79
John Then.....	Second street, Troy.....	Aug. 13, '79
James Hornbrook.....	Harts Falls.....	Aug. 13, '79
N. D. Ross.....	20 Third street, Troy.....	Aug. 15, '79
C. H. Jenkins.....	138 Fourth street, Troy.....	Aug. 16, '79
J. R. Draper.....	463 Fulton street, Troy.....	Aug. 18, '79
E. J. Knauff.....	463 Fulton street, Troy.....	Aug. 18, '79
A. B. Hornbrook.....	Schaghticoke.....	Aug. 19, '79
W. P. Edwards.....	25 Fifth street, Troy.....	Aug. 19, '79

Richmond County.

Name.	Office and P. O. Address.
Jerome B. Weller.....	New Brighton and Port Richmond.
D. J. H. Vere.....	New Brighton.
Henry F. Steinmeyer.....	Stapleton.
Frank D. Gould.....	Port Richmond.
Tunis Tappin.....	West Port Richmond.
E. A. Hervey.....	Rossville.

Name.	Office and P. O. Address.	Date of Registration.
Frederick William White.....	Port Richmond and New Brighton.	
A. G. S. Gale.....	Port Richmond.	
Charles E. Gale.....	Port Richmond.	
Cyrenius Thompson.....	Port Richmond.	

Rockland County.

Name.	Office and P. O. Address.	Date of Registration.
Miles Davenport.....	Nyack.....	Aug. 5, '79
Merritt E. Rice.....	Haverstraw.....	Aug. 5, '79
A. Healey.....	Nyack.....	Aug. 7, '79
Willis Davenport.....	Nyack.....	Aug. 7, '79
H. C. Gilchrist.....	Nyack.....	Aug. 15, '79
George D. Van Zandt.....	Pearl River.....	Aug. 20, '79

Saratoga County.

Name.	Office and P. O. Address.	Date of Registration.
Simeon D. Arnold.....	15 South street, Ballston Spa.....	Aug. 6, '79
Joseph R. Cornell.....	Ballston Spa.....	July 29, '79
Charles Carpenter.....	Saratoga Springs.....	Aug. 13, '79
Emery Doolittle.....	Broad street, Schuylerville.....	Aug. 5, '79
Abram T. Hawley.....	Waterford.....	Aug. 15, '79
Earl Inman.....	East Galway.....	July 29, '79
George E. Knox.....	Ballston Spa.....	Aug. 15, '79
James P. Niles.....	23 Front street, Ballston Spa.....	Aug. 18, '79
Frederick E. Parkman.....	Murray House, Main street, Corinth...	July 24, '79
T. E. Parkman.....	Rock City Falls.....	July 29, '79
E. S. Pearsall.....	Saratoga Springs.....	Aug. 18, '79
Adelbert A. Rosseter.....	Main street, Schuylerville.....	July 31, '79
Amos C. Rich.....	Saratoga Springs.....	Aug. 15, '79
Cyrus F. Rich.....	Saratoga Springs.....	Aug. 16, '79
Guy C. Rich.....	Saratoga Spa.....	Aug. 16, '79
Frederick H. Smith.....	Saratoga Springs.....	Aug. 13, '79
Stephen V. R. White.....	Mosherville.....	July 29, '79
Henry F. Winchester.....	Mechanicsville.....	Aug. 14, '79
Prince W. Weed.....	Saratoga Springs.....	Aug. 16, '79

Schenectady County.

Name.	Office and P. O. Address.	Date of Registration.
P. P. Merrihew.....	Quaker street, Schenectady.....	July 16, '79
B. F. Carmichael.....	82 Ferry street, Schenectady.....	July 17, '79
Daniel R. Smith.....	150 State street, Schenectady.....	July 17, '79
E. T. Van Vranken.....	Myers block, Schenectady.....	July 17, '79
John B. Hull.....	98 State street, Schenectady.....	July 22, '79
Volney Smith.....	11 Barrett street, Schenectady.....	July 24, '79
John Golich.....	47 State street, Schenectady.....	July 24, '79
Charles A. Neide.....	Duanesburgh.....	Aug. 1, '79
James C. Duell.....	47 State street, Schenectady.....	Aug. 1, '79

Schoharie County.

Name.	Office and P. O. Address.	Date of Registration.
Daniel Knowler.....	Schoharie	July 22, '79
Earl F. Dominick.....	Schoharie	July 24, '79
Joseph A. France.....	Cobleskill	Aug. 7, '79
George E. Hill.....	Richmondville	Aug. 8, '79
Celia A. Hill.....	Richmondville	Aug. 8, '79
Clarence Fox.....	Cobleskill	Aug. 8, '79
Jacob Nellis.....	Schoharie	Aug. 9, '79
Hadley Snyder.....	Middleburgh.....	Aug. 13, '79
Allen Fones.....	Sharon Springs.....	Aug. 14, '79
Luther T. Fox.....	Cobleskill	Aug. 15, '79
Marcus O. Landon.....	Cobleskill	Aug. 16, '79
Almon W. Clark.....	Jefferson	Aug. 18, '79
Michael Borst.....	Middleburgh.....	*Sept. 8, '79
Paul Brown.....	Espanance	*Sept. 16, '79

*Illegal.

Schuyler County.

Name.	Office and P. O. Address.	Date of Registration.
Robert T. Dearborn.....	Havana	Aug. 19, '79
C. H. Firman.....	Watkins.....	July 24, '79
Homer H. Hill.....	Mecklenburg.....	July 29, '79
J. A. Henry.....	Havana	July 30, '79
Horatio G. Pope.....	Watkins.....	July 28, '79
L. W. Patchen.....	Havana	Aug. 15, '79
W. A. Spence.....	Watkins.....	July 28, '79
John E. Schuyler.....	Mecklenburg.....	July 29, '79
Olin S. Voak.....	Watkins.....	July 29, '79
C. A. Van Valkenburg.....	North Hector.....	Aug. 6, '79

Seneca County.

Name.	Office and P. O. Address.
John L. Clark.....	Waterloo.
William M. Dennis.....	Sheldrake.
M. C. Gould.....	Farmer Village.
Charles D. Hoyt.....	Waterloo.
Thomas Holbrook.....	Seneca Falls.
Henry C. Knickerbocker.....	Seneca Falls.
Seeley A. Lewis.....	Lodi.
Nathan Lewis.....	Lodi.
Arthur W. McNames.....	Ovid.
Frank McOmer.....	Ovid.
James Mayhew.....	Seneca Falls.
Gilbert L. McClure.....	Ovid.
Edward H. Neal.....	Sheldrake.
Charles H. Neal.....	Sheldrake.
Wallace T. Reynolds.....	Ovid.
Roswell T. Reynolds.....	Ovid.
Edson G. Stetson.....	Farmer Village.
Ezra C. Terry.....	Ovid.

Steuben County.

Name.	Office and P. O. Address.	Date of Registration.
M. T. Babcock.....	Hammondsport	Aug. 1, '79
Frank D. Beals.....	Corning	Aug. 4, '79
L. W. Buck.....	Addison.....	Aug. 5, '79
O. H. Babcock.....	Hammondsport	Aug. 11, '79
W. J. Butler.....	Hornellsville.....	Aug. 13, '79
R. W. Barney.....	Hornellsville.....	Aug. 15, '79
Charles Compton.....	Bradford	Aug. 13, '79
F. A. Fenderson.....	Corning	Aug. 18, '79
William W. Greene.....	Prattsburg	Aug. 11, '79
W. N. Goodby.....	Addison.....	Aug. 18, '79
J. L. Goff.....	Cohocton.....	Aug. 19, '79
F. C. Hart.....	Addison.....	Aug. 18, '79
F. H. McGeorge.....	14 Market street, Corning.....	July 28, '79
F. B. McGeorge.....	14 Market street, Corning.....	July 29, '79
G. P. Miller.....	Corning	Aug. 11, '79
Perry Newell.....	Hedgesville.....	Aug. 8, '79
C. C. Newcomb.....	Cohocton.....	Aug. 18, '79
Ammon Osgood.....	Bath	July 28, '79
H. R. Phillips.....	Howard	Aug. 4, '79
G. H. Preston.....	Canisteo.....	Aug. 5, '79
R. N. Preston.....	Adrian.....	Aug. 5, '79
A. G. Preston.....	Wayland	Aug. 19, '79
G. P. Rishel.....	Hornellsville.....	Aug. 16, '79
C. L. Selover.....	Bath	Aug. 1, '79
P. K. Stoddard.....	Prattsburg	Aug. 4, '79
J. R. Selover.....	Bath	Aug. 11, '79
P. L. Stoddard.....	Prattsburg	Aug. 16, '79
F. E. Selover.....	Bath	Aug. 18, '79
R. S. Wrean.....	Howard	Aug. 11, '79
L. B. Woodon.....	Hornellsville.....	Aug. 13, '79
C. L. Wiggins.....	Hornellsville.....	Aug. 19, '79
B. F. Wiggins.....	Hornellsville.....	Aug. 19, '79

St. Lawrence County.

Name.	Office and P. O. Address.	Date of Registration.
George H. Adair.....	95 State street, Ogdensburg.....	Aug. 5, '79
John Austin.....	67 Green street, Ogdensburg.....	Aug. 5, '79
John B. Austin.....	67 Green street, Ogdensburg.....	Aug. 5, '79
Charles W. Barber.....	Gouverneur.....	July 30, '79
George B. Barnes.....	Gouverneur.....	Aug. 12, '79
Sanford S. Blodgett.....	95 State street, Ogdensburg.....	Aug. 4, '79
Oliver Bliss.....	Market street, Potsdam.....	Aug. 15, '79
W. W. Best.....	Market street, Potsdam.....	Aug. 16, '79
Samuel Clark.....	Waddington	July 22, '79
C. P. Day.....	Hermon.....	Aug. 8, '79
George B. Hakins.....	Norwood.....	July 16, '79
Clark A. Hosford.....	North Lawrence.....	July 21, '79

Name.	Office and P. O. Address.	Date of Registration.
Fred Hosley.....	Main street, Canton.....	Aug. 14, '79
John Hitchcock.....	Main street, Canton.....	Aug. 7, '79
James S. Neelands.....	5 Shepard's block, Ogdensburg.....	July 28, '79
J. T. Newell.....	Ogdensburg.....	July 31, '79
John B. Nichols.....	Market cor. Elm street, Potsdam.....	Aug. 19, '79
C. F. Ober.....	Fort Jackson.....	July 19, '79
J. A. Sheldon.....	Hopkinton.....	July 22, '79
James Spencer, jr.....	Gouverneur.....	Aug. 8, '79
Henry M. Welch.....	Potsdam.....	Aug. 14, '79
Joseph H. Willson.....	Canton.....	Aug. 19, '79

Suffolk County.

Name.	Office and P. O. Address.	Date of Registration.
Charles Bishop.....	Babylon.....	July 30, '79
F. W. Burgess.....	Huntington.....	Aug. 8, '79
N. Conklin.....	Islip.....	Aug. 19, '79
Gottlieb W. Darkow.....	Sayville.....	Aug. 4, '79
Daniel F. Easton.....	Wading River.....	Aug. 13, '79
Sidell E. Fish.....	Greenport.....	Aug. 16, '79
Elbridge G. Howard.....	70 Main street, Sag Harbor.....	July 22, '79
George P. Harding.....	Patchoque.....	July 31, '79
J. G. Huntting.....	Huntington.....	Aug. 1, '79
Levi L. Howell.....	Riverhead.....	July 28, '79
C. A. Lane.....	Riverhead.....	Aug. 19, '79
Edward Newbery.....	Brentwood.....	Aug. 11, '79
Louis K. Newbery.....	Brentwood.....	Aug. 16, '79
Havens B. Overton.....	Sayville.....	Aug. 7, '79
Jonas B. Payne.....	Smithtown.....	Aug. 7, '79
Alfred W. Smith.....	Amityville.....	Aug. 6, '79
Lyman W. Sutton.....	Greenport.....	Aug. 9, '79
Vincent Smith.....	Port Jefferson.....	Aug. 16, '79
Cassius M. Terry.....	Riverhead.....	July 31, '79
Darius Wheeler.....	Sag Harbor.....	Aug. 1, '79
Woodbury Bro's (H. & F.).....	Babylon.....	Aug. 19, '79

Sullivan County.

Name.	Office and P. O. Address.	Date of Registration.
J. C. Barnum.....	Monticello.....	Aug. 13, '79
Arthur P. Buckley.....	Liberty.....	Aug. 11, '79
Alvin Pease.....	Liberty.....	Aug. 6, '79
George R. Trusdell.....	Cochecton.....	July 18, '79
N. H. H. Williams.....	Neversink.....	Aug. 12, '79

Tioga County.

Name.	Office and P. O. Address.	Date of Registration.
Edwin D. Downs.....	Front street, Owego.....	July 30, '79
Ransom Walker.....	32 Front street, Owego.....	July 31, '79
Albert J. Wright.....	7 East Front street, Owego.....	Aug. 5, '79

Name.	Office and P. O. Address.	Date of Registration.
Edward A. Mayor.....	3 Front street, Owego.....	Aug. 6, '79
George P. Fisher.....	Spencer.....	Aug. 7, '79
George W. Rawley.....	Richford.....	Aug. 7, '79
Elmer Nelson.....	108 Broad street, Waverly.....	Aug. 11, '79
John Jackson.....	12 Lake street, Owego.....	Aug. 12, '79
R. S. Fellows.....	Newark Valley.....	Aug. 13, '79
J. B. Stanbrough.....	Front street, Owego.....	Aug. 14, '79
F. F. Thatcher.....	Spencer.....	Aug. 14, '79
H. P. Thatcher.....	Spencer.....	Aug. 14, '79
J. C. Houck.....	Candor.....	Aug. 15, '79
W. E. House.....	Candor.....	Aug. 15, '79
A. D. Foster.....	Waverly.....	Aug. 16, '79
James T. Noble.....	Newark Valley.....	Aug. 16, '79
E. B. Hubbard.....	Waverly.....	Aug. 18, '79
F. M. Snook.....	Waverly.....	Aug. 18, '79
James B. White.....	Owego.....	Aug. 18, '79
Dwight L. Matson.....	Owego.....	Aug. 19, '79

Tompkins County.

Name.	Office and P. O. Address.	Date of Registration.
J. F. Courtright.....	Speedsville.....	Aug. 7, '79
George Clark.....	Ludlowville.....	" 16, '79
Charles E. Dewey.....	Groton.....	" 16, '79
P. L. Foote.....	1 North Tioga street, Ithaca.....	" 7, '79
B. W. Franklin.....	22 East State street, Ithaca.....	" 11, '79
G. W. Frank.....	Ithaca.....	" 19, '79
A. H. Fowler.....	15 West State street, Ithaca.....	" 19, '79
H. P. Griswold.....	Trumansburgh.....	July 29, '79
L. R. Gleason.....	McLean.....	Aug. 14, '79
George W. Hoysradt.....	Cayuga cor. Seneca street, Ithaca.....	July 26, '79
William Hughes.....	Cayuga cor. Seneca street, Ithaca.....	" 26, '79
Freeman S. Howe.....	1 and 11 Bates block, Ithaca.....	" 28, '79
Fred C. Hawkins.....	8 East Mill street, Ithaca.....	" 31, '79
Frank E. Howe.....	1 and 11 Bates block, Ithaca.....	Aug. 4, '79
R. B. Hill.....	Trumansburgh.....	" 12, '79
Charles C. Hill.....	Trumansburgh.....	" 12, '79
George W. Melotte.....	Wilgus block, Ithaca.....	July 31, '79
James H. Matson.....	117 East State street, Ithaca.....	" 31, '79
Spencer Ostrander.....	1 North Tioga street, Ithaca.....	Aug. 7, '79
Asa W. Smith.....	Ludlowville.....	July 29, '79
Claude C. Sears.....	Trumansburgh.....	Aug. 6, '79
C. M. Sharp.....	73 East State street, Ithaca.....	" 22, '79
E. H. Tallmadge.....	Trumansburgh.....	" 11, '79
W. M. Thorne.....	Groton.....	" 16, '79
R. L. Weaver.....	Dryden Village.....	" 14, '79
J. C. Wall.....	Caroline Center.....	" 14, '79

Ulster County.

Name.	Office and P. O. Address.	Date of Registration.
Ephraim Colburn.....	Kingston.....	Aug. 15, '79
William C. Derby.....	Ellenville.....	" 12, '79
M. M. Frisselle.....	28 Wall street, Kingston.....	July 25, '79
W. B. Finch.....	Wall cor. John street, Kingston.....	" 31, '79
C. H. Ganse.....	Highland.....	Aug. 2, '79
G. B. Garrison.....	Ellenville.....	" 11, '79
P. M. Gedney.....	Ellenville.....	Aug. 11, '79
Henry A. Knight.....	Wall street, Kingston.....	July 24, '79
J. C. Norton.....	Wall street, Kingston.....	July 19, '79
T. P. Ostrander.....	Kingston.....	Aug. 12, '79
Ethan Parrott.....	Milton.....	Aug. 15, '79
Hyman Rosa.....	Kingston.....	July 17, '79
Daniel J. Rodgers.....	Ellenville.....	July 30, '79
Elijah Travis.....	Shokan.....	July 26, '79
Simon S. Van Namer.....	Kingston.....	Aug. 15, '79
Luther O. Wygant.....	Main street, Saugerties.....	July 23, '79
Harvey Wygant.....	Main street, Saugerties.....	July 23, '79

Warren County.

Name.	Office and P. O. Address.	Date of Registration.
John H. Bean.....	Lake George.....	Aug. 13, '79
J. W. Benson.....	Glens Falls.....	Aug. 18, '79
D. H. Bullard.....	Glens Falls.....	Aug. 18, '79
I. E. Cadwell.....	Glens Falls.....	Aug. 19, '79
James S. Garrett.....	Glens Falls.....	Aug. 18, '79
Frank A. Griswold.....	Pottersville.....	Aug. 12, '79
James H. Griswold.....	Pottersville.....	Aug. 12, '79
Alfred Johnson.....	Thurman.....	Aug. 11, '76
Byron A. Martine.....	North Creek.....	Aug. 18, '79
G. R. Martine.....	North Creek.....	Aug. 18, '79
Miles Morehouse.....	Johnsburgh.....	Aug. 4, '79
Marvin R. Peck.....	Glens Falls.....	Aug. 18, '79
E. E. Riddell.....	Bolton.....	Aug. 15, '79
C. E. Stacks.....	Glens Falls.....	Aug. 14, '79

Washington County.

Name.	Office and P. O. Address.	Date of Registration.
C. S. Thomas.....	Hartford.....	July 8, '79
S. L. Ward.....	Poultney (Vt.).....	July 14, '79
J. C. Cudworth.....	Hartford.....	July 14, '79
H. G. Barton.....	Argyle.....	July 19, '79
John Gilchrist.....	Fort Edward.....	July 21, '79
R. L. Dunning.....	Dorset (Vt.).....	July 22, '79
Benjamin S. Burnham.....	Fort Edward.....	July 28, '79
Zina Cotton.....	Cambridge.....	July 29, '79
William H. Brockway.....	Cambridge.....	July 29, '79

Name.	Office and P. O. Address.	Date of Registration.
Martin Tefft.....	Cambridge.....	Aug. 4, '79
Eiwood Griffin.....	Greenwich.....	Aug. 6, '79
C. S. Hanks.....	Whitehall.....	Aug. 6, '79
Willard H. Cotton.....	Salem.....	Aug. 7, '79
Stephen L. Stillman.....	Greenwich.....	Aug. 8, '79
H. E. Potter.....	Sandy Hill.....	Aug. 11, '79
E. J. Ameden.....	Sandy Hill.....	Aug. 11, '79
Safford Reynolds.....	Middle Granville.....	Aug. 12, '79
Charles S. Robertson.....	Shushan.....	Aug. 13, '79
W. J. Williamson.....	Greenwich.....	Aug. 13, '79
J. H. Collins.....	Granville.....	Aug. 18, '79
C. A. Elmore.....	Fort Edward.....	Aug. 19, '79
William Smith.....	Whitehall.....	Aug. 22, '79

Westchester County.

Name.	Office and P. O. Address.	Date of Registration.
Charles S. Betts.....	Mount Kisco.....	Aug. 5, '79
William E. Birdsall.....	Peekskill.....	Aug. 16, '79
James M. Beale.....	Peekskill.....	Aug. 19, '79
W. M. Fancher.....	Sing Sing.....	Aug. 12, '79
Ephraim D. Fuller.....	Sing Sing.....	Aug. 18, '79
James H. Hoag.....	86 Warburton avenue, Yonkers.....	Aug. 6, '79
John H. Haughwout.....	Main cor. Adee street, Port Chester.....	Aug. 18, '79
Louis Kilthan.....	New Rochell.....	Aug. 12, '79
Chancey B. Lane.....	South Salem.....	Aug. 12, '79
John A. Manzini.....	Purdy's Station.....	Aug. 16, '79
Francis M. Osborn.....	Port Chester.....	Aug. 7, '79
G. G. Platt.....	White Plains.....	Aug. 6, '79
D. E. Provost.....	Sing Sing.....	Aug. 12, '79
George W. Perry.....	Yonkers.....	Aug. 16, '79
J. W. Seaman.....	Port Chester.....	Aug. 6, '79
E. B. Sherwood.....	Sing Sing.....	Aug. 12, '79
E. J. Seaman.....	Mount Vernon.....	Aug. 13, '79
Alfred Starr.....	Mount Vernon.....	Aug. 14, '79
T. C. Tierney.....	New Rochelle.....	Aug. 18, '79
Gulian Verplanck.....	Tarrytown.....	Aug. 15, '79
Horace A. Warner.....	Mount Kisco.....	Aug. 11, '79
George Wright.....	Yonkers.....	Aug. 12, '79
Charles E. Wickware.....	Katonah.....	Aug. 14, '79
Henry B. Wygant.....	Peekskill.....	Aug. 14, '79

Wayne County.

Name.	Office and P. O. Address.	Date of Registration.
Edward D. Alling.....	Sodus.....	Aug. 14, '79
Clarence B. Aumock.....	Newark.....	Aug. 15, '79
Francis C. Brown.....	Main street, Palmyra.....	Aug. 11, '79
B. Sanford Bush.....	Williamson.....	Aug. 12, '79
R. C. Barless.....	Rose.....	Aug. 19, '79

Name.	Office and P. O. Address.	Date of Registration.
F. C. Croal.....	Glasgow street, Clyde.....	Aug. 6, '79
Nelson D. Drake.....	Main street, Newark.....	Aug. 14, '79
Hugh Jameson.....	Canal street, Lyons.....	Aug. 12, '79
Lloyd C. Jones.....	3 Main street, Wolcott.....	Aug. 18, '79
D. W. S. Lee.....	Maple street, Sodus.....	Aug. 14, '79
George P. Livingston.....	Clyde.....	Aug. 19, '79
Nicholas L. McDonald.....	Newark.....	Aug. 15, '79
George Erwin Mattison.....	Wolcott.....	Aug. 18, '79
Edward C. North.....	Main street, Palmyra.....	Aug. 12, '79
Henry M. North.....	Main street, Palmyra.....	Aug. 14, '79
B. M. Paget.....	Main street, Newark.....	Aug. 13, '79
Edson M. Roffee.....	Clyde.....	Aug. 14, '79
Henry T. Towar.....	Pearl street, Lyons.....	Aug. 13, '79
W. P. Willett.....	Newark.....	Aug. 13, '79
H. H. Watrous.....	Lyons.....	Aug. 18, '79

Wyoming County.

Name.	Office and P. O. Address.	Date of Registration.
E. D. Gardiner.....	Main street, Warsaw.....	July 17, '79
V. H. Jackson.....	Wyoming.....	July 22, '79
C. G. Bartlett.....	Perry.....	July 23, '79
Alonzo Lane.....	North Java.....	July 24, '79
H. M. Scranton.....	Perry.....	July 28, '79
E. M. Scranton.....	Perry.....	July 28, '79
B. F. Lewis.....	Arcade.....	Aug. 6, '79
Charles R. Calkins.....	Perry.....	Aug. 6, '79
W. D. Martin.....	Warsaw.....	Aug. 9, '79
E. Wright.....	Castile.....	Aug. 11, '79
T. Eldridge.....	Castile.....	Aug. 15, '79
J. G. Borden.....	Bennington.....	Aug. 18, '79
G. A. Vaughn.....	Pike.....	Aug. 18, '79
J. Q. Bradt.....	Attica.....	Aug. 18, '79
P. N. Lorish.....	Attica.....	Aug. 18, '79
A. S. Cheeseman.....	Market street, Attica.....	Aug. 19, '79
E. E. Prentice.....	Market street, Attica.....	Aug. 19, '79

Yates County.

Name.	Office and P. O. Address.	Date of Registration.
George A. Bowen.....	Penn Yan.....	Aug. 6, '79
Charles Elmendorf.....	Penn Yan.....	Aug. 12, '79
Charles W. Leake.....	Middlesex.....	Aug. 17, '79
Roswell W. Reynolds.....	Dundee.....	Aug. 4, '79
M. H. Smith.....	Penn Yan.....	Aug. 11, '79
William W. Smith.....	Penn Yan.....	Aug. 11, '79
H. A. Struble.....	Himrods.....	Aug. 13, '79
Charles M. Sleeper.....	Dundee.....	Aug. 14, '79
Roswell E. Sunderlin.....	Dundee.....	Aug. 14, '79
John S. Thompson.....	Rushville.....	Aug. 8, '79

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